Everyday Products in the Middle Ages

Hansen, Gitte.;Ashby, Steven P.;Baug, Irene.; Steven Ashby

VISIT...

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Crafts, Consumption and the Individual in Northern Europe *c.* AD 800–1600

Edited by
Gitte Hansen, Steven P. Ashby and Irene Baug

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Front cover: A Bohemian glass works from the beginning of the 15th century. (Source: British Library. Picture book of Sir John Mandeville's Travels. Add. 24189, f.16r).
Back cover: Everyday products from Western Norway. (Photo by G. Hansen and S. Skare, University Museum of Bergen, Norway).

Contents

List of contributors
Preface

1. Everyday products in the Middle Ages. Crafts, consumption and the individual in northern Europe *c*. AD 800–1600: an introduction
Gitte Hansen, Steven P. Ashby and Irene Baug

2. 'With staff in hand, and dog at heel'? What did it mean to be an 'itinerant' artisan?
Steven P. Ashby

3. Itinerant craftspeople in 12th century Bergen, Norway – aspects of their social identities
Gitte Hansen

4. Urban craftspeople at Viking-age Kaupang
Unn Pedersen

5. Crafts in the landscape of the powerless. A combmaker's workshop at Viborg Søndersø AD 1020–1024
Jette Linaa

6. Bone-workers in medieval Viljandi, Estonia. Comparison of finds from downtown and the Order's castle
Heidi Luik

7. Consumers and artisans. Marketing amber and jet in the early medieval British Isles
Carolyn Coulter

8. The home-made shoe, a glimpse of a hidden, but most 'affordable', craft
Quita Mould

9. Fashion and necessity. Anglo-Norman leatherworkers and changing markets
Quita Mould and Esther Cameron

10. Tracing the nameless actors. Leatherworking and production of leather artefacts in the town of Turku and Turku Castle, SW Finland
Janne Harjula

11. Ambiguous stripes – a sign for fashionable wear in medieval Tartu
Riina Rammo

12. Silk finds from Oseberg. Production and distribution of high status markers across ethnic boundaries
Marianne Vedeler

13. The soapstone vessel production and trade of Agder and its actors
Torbjørn P. Schou

14. Actors in quarrying. Production and distribution of quernstones and bakestones during the Viking Age and the Middle Ages
Irene Baug

15. The role of Laach Abbey in the medieval quarrying and stone trade
Meinrad Pohl

16. Iron producers in Hedmark in the medieval period – who were they?
Bernt Rundberget

17. What did the blacksmiths do in Swedish towns? Some new results
Hans Andersson

18. The Iron Age blacksmith, simply a craftsman?
Roger Jørgensen

19. Bohemian glass in the north. Producers, distributors and consumers of late medieval vessel glass
Georg Haggrén

20. If sherds could tell. Imported ceramics from the Hanseatic hinterland in Bergen, Norway. Producers, traders and consumers: who were they, and how were they connected?
Volker Demuth

21. Marine trade and transport-related crafts, and their actors – people without archaeology?
Natascha Mehler

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Preface

This book has been several years in the making. The majority of the papers published here were originally presented at an exploratory workshop entitled 'Actors and Affordable Crafts: Social and Economic Networks in Medieval Northern Europe'. This workshop, held in Bergen, Norway in February 2011, was organized by Gitte Hansen, Steven P. Ashby and Irene Baug. Twenty-four material-culture researchers from Northern Europe came together to enter into a dialogue about 'actors' engaged in 'affordable crafts'. The participants were invited in Spring 2009, a considerable time before the workshop was due to take place, in order to ensure ample time for intellectual preparation ahead of the meeting. In the invitation, we challenged the participants to revisit their traditional fields of research and 'find the actors': the individuals behind the production, trade, and use of our various crafts. Pre-papers, distributed prior to the meeting, ensured that everyone was able to participate in a well-informed manner, and the result was an inspiring and productive meeting. It was agreed that we would publish a volume, and here it is! We would like to thank Clare Litt and the staff of Oxbow books for their support in seeing this volume through from start to finish.

Gitte Hansen, Steven P. Ashby and Irene Baug
Bergen and York
March 2014

Chapter 1

Everyday products in the Middle Ages. Crafts, consumption and the individual in Northern Europe *c*. AD 800–1600: an introduction

Gitte Hansen, Steven P. Ashby and Irene Baug

This book is about people in the past. It presents 20 case studies into the activities and identities of producers, traders and consumers in northern Europe and the North Atlantic region. While some of the studies draw lines back into the 7th century, and some push on well into the 18th, the majority deal with actors – individuals, groups, or representatives of institutions – in the period between the 9th and the 17th centuries. In detail, our focus is on the identity of the actors associated with crafts and industries that processed bone and antler, stone, fine and base metals, iron, wool, silk, glass, leather, and pottery.

Much research has been undertaken on production, trade and consumption in the past, whereas far less time has been devoted to study of the associated producers, merchants, and consumers themselves. The individuals – who we will refer to as 'actors' – that are the focus of this volume made up what we might call the 'chain of operators': producers, distributors and consumers who lived their lives extracting raw materials in the outfields, making everyday products at rural and urban sites, transporting goods by land, river or sea, exchanging raw materials or merchandise at markets, and consuming things in their households. The items consumed were everyday

products: 'affordable crafts' such as household utensils and personal accessories, within reach for a large component of the general populace, and not exclusive to (for example) a secular or religious elite. Our attention is thus focused squarely on ordinary people, the oft-overlooked, 'voiceless actors' that are seldom visible beyond the archaeological sources, whether they be individuals acting under their own free will, bonded thralls and servants, or representatives of any of the secular or eccleastic institutions – that were involved in the production and trade of our various crafts.

It is, of course, no small task to isolate and study such individuals. The most troublesome confound, perhaps, is the issue of academic tradition. As members of the academe, most of us are trained to accept that, ultimately, our research is only socially relevant and justifiable if it can somehow contribute to an understanding of the *Big Important Questions*. Metaquestions such as the rise of towns, state formation, trading networks, and the introduction of Christianity have thus long set the agenda in studies of production, trade and consumption. Studies that address issues more focused at the level of everyday life, or studies that apply what one may call *bottom up* perspectives (wherein the nuances and variety in human lifeways are sought) remain less well recognised as fields of research, notwithstanding the degree to which such stories from below fascinate. Because of our academic training, a 'twist' of mindset is required for most of us in any attempt to identify actors, and to study their identity more closely.

Secondly, the actors themselves are difficult to find, namely because they are represented by few traces in the available sources for the past. A bottom-up study, based primarily on archaeological sources such that the identities of our actors are in focus, demands either highly resolved archaeological data, or very large datasets in which patterns in the material may be discerned. Even in these cases, interpretation is rarely straightforward. Fortunately, the spectrum of sources available to us is wide, while the contents of the methodological and theoretical toolbox from which we may draw our approaches are equally diverse, as will be clear from the papers that follow. To cite Mehler (this volume): 'The people dealt with here are not without archaeology, we just have to look more closely to find them amongst our material'.

More broadly, the present volume may be seen as part of an

analytical trend away from quantitative analyses of large datasets, toward more in-depth qualitative studies, wherein popularly accepted models are challenged and revised. Medieval and early historic archaeology is maturing as a discipline; material remains now set the agenda and themes on their own terms, fastening on those issues for which the archaeological sources are well placed to say something novel and significant. This has been an important development, and one fundamental to the production of volumes such as this. Another inspiration has been the realisation that holistic and coherent syntheses, however difficult, are a worthy goal for any scholar of our period. Traditionally, outfield, rural, and urban activities, as well as studies of transport and movement, have been discussed within discrete archaeological subfields. Here, not only are such contexts studied cheek-by-jowl, but they are often approached comparatively and synthetically. In what follows, we will briefly introduce some of the themes in focus.

It is important that we remember that archaeological remains are material traces of *activities* carried out by *people* in the past. Human agents played a vital role in all episodes of an object's biography, from the quarrying of stone and the hunting of reindeer in pursuit of antler, through production and distribution of finished objects, to their acquisition and consumption. As demonstrated in this volume, there is great potential to access the identities of actors through the study of such phenomena as (*i.a.*) raw material and product provenance, access to and control of resources, spatial distribution of production debris, and geographical patterning in object form and ornament.

Once we recognise the movement of objects (either over large geographical areas, or within more geographically constrained contexts), this triggers a range of important questions: who owned the raw material resources and controlled the means of production? Who actually carried out the production and distribution? Why were some objects distributed over large distances, while other show a much more limited spatial range? How did these objects or raw materials travel? Similarly, how were aesthetic ideas, types, and forms (fashions) transmitted? Were some artisans mobile, together with their knowledge and toolkit? Did, for instance, certain comb types circulate in the same networks as other artefact forms (such as textiles, millstones, steatite vessels, or affordable metal objects and jewellery)?

Did the networks within which specific object types or raw materials circulated coincide with regions defined on social, cultural, religious, ethnic, or political terms? How did such spatial distributions change through time, and why? This volume will attempt to answer some of these questions, and will raise others as areas of potential for future research.

There is no single framework by which one may be granted access to the lives and identities of our actors, but the various approaches employed herein do share certain common theoretical precepts. As discussed above, much archaeological work on artefacts and crafts is typically characterised by metaquestions such as the role of iron extraction for state formation, or the role of craft or trade in the rise of towns. Equally common are discussions that deal primarily with technology and classification, such as the technical aspects of iron production, or the typological developments that characterise medieval shoemaking. As for consumption, this is most often seen as a consequence of trade, though in recent years consumption in its own right has recieved more attention (e.g. Cook *et al.* 1996 with references).

In the present volume, rather, perspectives from below are prevalent. In order to add nuance to our understanding of the past and its people, readers will note that an 'actor' perspective on activities runs as a red thread through the volume. Activity is thus perceived as initiated and carried out by knowledgeable (but not always successful) individuals, either acting on their own behalf, or representing an institution, but within the frame of a wider historical context. Here is not the place to present a detailed historiography of these issues, but if suffices to say that the volume is variously influenced by the work of Bourdieu (1977), Braudel (1980), Giddens (1984), and Latour (2005), among others. Once the centrality of our actors' actions is acknowledged, a natural next step is to address the identity of these actors.

But identity is a fuzzy and problematic term. If we ask the man or woman in the street to characterise themselves, He or she would be unlikely to answer 'I am a person who is important in the rise of towns', or 'I am a catalyst of fundamental social change' (unless we have stumbled into a politician). More likely, we would receive information on primary social identities involving factors such as age,

sex, religion or ethnic background, and perhaps we would also hear about occupation, social position or income. We may term such aspects of a person's identity their social identity (cf. Jenkins 1996). We mean to prioritise this social identity, to empower our actors by acknowledging who they were, and exploring the details of their real lives (to the extent that such details are available to us). We aim to see these people as individuals – as people with agency, but also with biographies – rather than simply as cogs in a machine. Of course, the fact that identity is flexible and constructed (if not unconstrained) need not be rehearsed here (see, for example, Barth 1969; Jenkins 1996). Moreover, the difficulty of isolating the particular features of a given artefact that may tell us about either personal or group identity is well established (see, for example, Weissner 1983). These issues certainly confound straightforward analysis of our sources, but also allow us to write more interesting and socially enlightening narratives.

The study of identity has been in vogue since the 1990s, which means that there is no shortage of theoretical apparatus with which to investigate this problem. Indeed, the papers that make up this volume tackle the issue from a variety of perspectives. Nonetheless, within this broad, post-processual panoply, the reader may trace a number of common concerns and approaches running through the following chapters. First, one might note the frequent, though often indirect allusion to the *Chaine operatoire* approach. Several case studies are clearly inspired by the work of Leroi-Gourhan (1964), such that themes are elucidated all the way along the Chain of Operations from the exploitation of natural resources in the outfield, to the consumption of products in rural and urban settlements. The approach also gives rise to biographical studies of objects (after Appadurai 1986; Kopytoff 1986), and indeed industries (see Haggren this volume; Demuth this volume). There is little doubt that such approaches facilitate the production of a richer, more holistic understanding of the past.

Of course, the reader will also perceive an explicit *actor* perspective: the identification of actors involved in raw material extraction, -exchange and -consumption. The term *actors* is here applied broadly; we are interested in the actions of individuals, whether acting on their own initiative/behalf or representing larger groups, institutions or organisations. Such actors may be characterised

in terms of social-, occupational-, ethnic-, gender-, or other group affiliation. Such an approach enhances the understanding of the past as created and populated by *people*. The approaches taken by a number of our authors are inspired by Latour's (2005) Actor Network Theory (e.g. Baug, Preus Schou), which identifies communicative systems through the study of the distribution of artefacts and people.

The collection is also characterised by a *comparative* approach; the parallel pursuit of different 'raw material-chains' facilitates a number of insights. Hansen's paper delivers a focused application of this technique, bringing together diverse sources in order to address a range of questions related to the identities and demographics of craft workers. Neither are our sources limited to small finds and manufacturing waste; many of the studies in this volume are notable for the ways in which they situate production within the context of settlement topography (Hansen this volume), structures (Linaa this volume), and landscape (Preus Schou this volume). Such contextual coherence is no longer novel in prehistory (see Bradley 2000; Edmonds 1999), but does constitute an important step forward in medieval archaeology.

Finally, one will certainly note a common *long-term* perspective; we aim to trespass beyond archaeology's traditional chronological divides, and muddy our feet in prehistoric as well as historical archaeology. The various contributions use case studies from across time and space, making it possible to identify phenomena characterised by both stability and change. Through the period with which the book is concerned, society was transformed in many ways, as were the actors involved in production and distribution. The transition from a prehistoric to historic context had implications not just in terms of the materials left for the archaeologist, but also for the actors themselves, as the accompanying political, ideological, and socio-economic developments were truly transformative. This is acknowledged in the contextual approach taken by many of the authors published in this volume, wherein both context and material are used together to answer questions that relate both to the immediate moment and the longue durée.

Notwithstanding these common perspectives, the volume is characterised by technical diversity. The authors have addressed the identity of actors through a variety of available sources, and by

applying a range of methods. Most of the studies have their basis in detailed empirical studies of very large archaeological datasets, but written and pictorial sources also play an important role, particularly so as they become more abundant in the more recent past. Moreover, in reviewing the contributions, one is struck by another form of diversity. Of course, one will perceive an inherent temporal and spatial diversity. But the patterns that emerge are also diverse; it seems that the more knowledge about the past to which we are party, the greater the variation we may perceive. Take, for example, the issue of itinerancy among craftspeople.

Itinerancy is certainly not a new area of research focus, the organisation of crafts being a central factor in any discussion of the development of industry and the rise of towns (see Ashby this volume, Hansen this volume for references). Ashby, however, warns against 'a default use' of the 'model of the itinerant artisan' and calls for studies that apply an awareness of spatial chronological, economic and political contingency. In Linaa's and Pedersen's papers, which consider an itinerant lifestyle for the fine metalworkers of Viking-Age Kaupang, Norway (Pedersen) and a combmaker in medieval Viborg, Denmark (Linaa) we find such studies. Pedersen finds that both settled and itinerant lifestyles may have characterised activity in the different workshops encountered at Kaupang, and Linaa calls for a flexible view of craft organisation, which takes into account seasonal production. In a similar vein, Coulter points out that jet- and amber-working in the British Isles may not have been a full-time occupation in the tenth and eleventh centuries, though finds from York and Dublin suggest that artisans were residents with their own workshop areas, and in Dublin there are indications that business spanned several generations. Luik discusses itinerancy in connection with her medieval bone and antler workers in Viljandi, south Estonia, as does Jørgensen when dealing with the north Norwegian blacksmith, though neither find weighty evidence to sustain the lifestyle of their craftspeople, illustrating the challenges of this sort of interpretative endeavour. Answering Ashby's call for appreciation of logistical diversity, a range of 'itinerancies' are encountered among Haggren's late medieval Bohemian glassmakers and Demuth's medieval and early-modern north German potters. An apprentice-journeyman-master system is thus suggested by Demuth as a component in the education of potters, while the transportation of

glassware and pottery – from the upland, forested areas of Bohemia and northern Germany, to navigable rivers or ports for overseas transport of goods – was often the responsibility of heavily-laden peddlers, compelled to carry the products on their backs.

Studies that are able to draw upon a wide array of contemporary (or near contemporary) documentary sources may reveal details that an archaeologist could only dream of uncovering from the material culture alone. The further we travel to the south and west, and the more we close in on the early modern period, the greater the potential contribution of written and pictorial sources. Contributions by Demuth, Haggren, Harjula, Mehler, and Pohl benefit in this regard, and provide detail on issues for which the archaeological sources are uninformative. These studies thus serve as important points of reference for discussions situated in contexts for which only material evidence is available. Furthermore, new questions may arise from such informed analysis, such as the question of the demographic composition of workshops.

And some demographic groups are more reticent and resistant to analysis than others. Jørgensen addresses the ethnicity of the Iron-Age blacksmith in north Norway: a region inhabited by at least two ethnic groups: the Norse and the Saami. Later sources suggest that the Saami were involved in smithing, but the archaeological evidence for the industry is sparse, and cannot support firm conclusions. The same scarcity of sources applies to attempts to consider the presence of children and women among the producers. Haggren shows through pictorial evidence that later-medieval Bohemian glassmaking was a family enterprise in which young and old, man and wife were involved at various stages from production to sale. Demuth holds the same to be true for rural potters in Germany. In addressing the demographic composition of craftspeople in Viking-Age Kaupang, Norway, however, all that Pedersen finds is ‘a small finger’[print] – perhaps that of a woman or a young person – imprinted in a clay crucible. In 12th-century Bergen, Hansen finds misshapen combs: perhaps the products of young, incompletely trained hands. Archaeological hints as to the presence of women and the young are indeed few, and might perhaps, if seen in isolation, be dismissed as coincidental. As further observations come to light, however, such isolated finds no longer appear so isolated; unexpected patterns may

emerge, and our evidence may find parallels across sites. Thus, with the late- medieval family-based enterprises of glass and pottery production in mind, the idea of Viking-Age or early-medieval travelling workshops being characterised by a diverse demographic profile no longer seems an overly bold suggestion.

Even in more 'prehistoric' contexts, a diversity of sources may be brought to bear on our efforts to identify the invisible actors of craft, trade and consumption; the key is a creativity of approach and robust methodological framework. Preus Schou's focused study of steatite production provides an excellent example of the insights that can be gained through a close and critical survey of the archaeological, topographic and toponymic evidence relating to a well-defined parcel of landscape. More widely, engagement with the natural environment is a central theme in many of the papers in this volume. Ashby promotes the need to acknowledge the rural provenance of the materials needed for the combmaking craft, while the exploitation of natural resources on an industrial or near-industrial scale is an important consideration in discussions by Baug, Rundberget and Preus Schou. The markets for these products are of course equally diverse: some were targeted primarily at regional consumers, while others were aimed at a wide range of consumers, local to international.

For some raw materials, such as iron, one may perceive the chain of operations from extraction to finished product being traced through several papers. Actors involved in all the processes of extraction of bloomery iron in the outfields of medieval south-eastern Norway are treated by Rundberget, the surprising presence of primary smithies in 13th-/14th-century Swedish towns is discussed by Andersson, and the Iron-Age blacksmith of north Norway is addressed by Jørgensen. Together, these three papers span the period from the Late Iron Age to the High Middle Ages, and may be seen as something of an extended, pluralist essay on the subject.

Studies of iron production and stone quarrying have generally employed a technical, economic and descriptive approach to production. As a consequence, little is known about the activities and the various groups of people involved in the production and trade of stone and iron objects. In Baug's, Preus Schou's, Rundberget's and Pohl's contributions, perspectives and frames of analyses are broadened, such that the actors involved in the extraction, refinement

and sale of stone products and raw iron are addressed. The studies thus provide a more comprehensive and nuanced picture of production, exploitation, distribution and consumption of outfield resources: something of a biographical approach. Resources in the outfield were exploited on a near-industrial scale, and a number of modes of organisation for production and distribution are suggested. People from multiple levels of the society were thus involved – directly or indirectly – in the different stages of the activities.

It is important to problematise some of the terms we have used in the volume: the degree to which items or materials may be said to be 'everyday products' or 'affordable' is of course subjective, and variable in time and space, depending upon social, economic, political, and environmental context. Mould brings to our attention homemade single-piece shoes of untanned leather, and suggests that these shoes – used by rural people – must be among the most affordable foot wear in prehistory and history. In contrast, tanned-leather shoes and other tanned-leather goods seem to have been highly valued in 12th-century urban England. Mould and Cameron show that the repair and reuse of these items became increasingly common, suggesting that leather was valued as a raw material to the extent that products made of this material were cared for in an attempt to extend their use lives. Moving through time and space to late-medieval Finland, Harjula shows that consumers in Turku discarded their leather shoes even when only lightly worn, suggesting that tanned leather was quite affordable at this time and place. In contrast, the silk textiles that travelled great distances before being interred in the high status Viking-Age grave at Oseberg in Norway were certainly not affordable, and hardly an everyday object even for the deceased in the burial mound. Their study is included here as the biography of the material brings us into contact with a host of characters which stands in contrast to those encountered in many of the accompanying papers. In emphasising the trade and consumption of Viking-Age silk textiles from the east, Vedeler draws our attention to the role of Sogdian merchants as key actors and mediators of the value and inherent meanings attached to their goods. Finally, Rammo's paper focuses on merchants and consumers of textiles, in this case study red-striped wool textiles provide the dataset. These textiles were used by a particular group of townspeople in late medieval multi-ethnic Tartu,

Livonia (Estonia). The striped textiles were produced in western Europe in a range of fabrics from luxurious to cheap, but merchants appear to have focused on importing the cheapest forms to Turku. Here, active decision-making consumers seem to have expressed their identity through their choice of dress.

In sum, a wide range of actors have been uncovered (Figure 1.1); from powerless combmakers, through small-scale, enterprising producers of personal accessories, stone-hewing farmers, rope- and sail-makers, and fashion-mediating merchants; to representatives of powerful institutions such as the Hanse, The Teutonic Order, the King, and a number of ecclesiastical institutions. So what does all this have in common? An overarching theme in this volume, notwithstanding its breadth of approach and subject material, is the need for a particularist standpoint. An understanding of the significance of social, economic, political and environmental contingency is fundamental to the 21st-century project of medieval archaeology. While we may ultimately aim for generalising models, these must be emergent from the synthesis of detailed local case studies, and must ultimately be tested against further small-scale analyses. It is only through such appreciation of regionality that resolution can ever be granted to the development of a more global picture. Networks are useful conceptual tools, but they connect together real historical situations, and we need to ensure that we do not overlook the people in our search for systems. Generalising models should be remembered for what they are: approximations of the experienced world, a world made up of particular people, particular places, particular things. These particularities should be our quarry.

clay
diggers,
clay
refiners, fire wood
collectors, sand diggers, beach
combers, stone cutters, Layer
Erbherr, Lehrherr, stonema-
son, the Abbey, the Order,
lay brother, converts, militaire brother, familiar,
familiar, owners - operators - workers, pot-smiths,
farmers of vessels, decorators, liners, master
craftsmen, apprentices, journeymen, family-run
workshops, monastic institutions, the King, crafts-
villagers, forest dwellers, ash producers, glassblowers,
serfs, freeman, woman, wives, daughters, sons,
packers, bellow-worker, furnace stoker, the Teutonic
Order, attached specialists, free small scale producers,
jacks of several trades, foreign craftspeople, diaspora,
apprentice-journeyman-master, pouch makers, chamois
makers, tanners, saddle makers, millan makers,
shoemaker, sword polisher, boltmaker, combmaker, fine
metalworkers, blacksmiths, hornworkers,clay diggers,
clay refiners, fire wood collectors, sand diggers,
beach combers, stone cutters, Layer, Erbherr,
Lehrherr, stonemason, the Abbey, the Order,
lay brother, converst, militaire brother, familiar,
owners - operators - workers, pot-smiths, formers
of vessels, decorators, liners, master craftsmen,
apprentices, journeymen, family-run workshops,
Monastic institutions, the King, crafts villagers,
forest-dwellers, ash producers, glassblowers, serfs, freeman,
women, wives, daughters, sons, packers, below-worker, furnace stoker,
the Teutonic Order, attached specialists, free small scale
producers, jacks of several trades, foreign craftspeople, diaspora,
apprentice journeyman master, pouch makers, chamois makers, tanners,
saddle maker, smith, millan makers, shoe- maker, sword
polisher, boltmaker, combmaker, fine
metalworkers, blacksmiths, horseworkers, cutlers,
professionals, rope and sail wallers, coopers, ship
shipbuilders, anchor smiths, currier, leatherworker, glovers,
saddlers, cordwainer, dyers, weavers, fullers,
shearers, wool sorters, beaters, carders, combers,
spinners, iron bloomery smelter, forest
farmers/iron producers, Riverboat operators,
operators, peddlers of pottery and glass
and glass vessels, The Hanseatic
selling League, selling sailors, loose sellers, bulk
sellers, Bulk traders, customs officials, The Teutonic
the Teutonic Order, middleman,
crane
operators,
packers,
lightermen,
ballast-
men,
jacks of several trades, foreign
craftspeople, diaspora?
Apprentice-journeymen-
master, pouch makers,
chamois makers, tanners,
saddle makers, millan
makers, shoemaker,
sword polisher, beltmaker, comb-
maker, fine metalworkers, blacksmiths, horn-
workers, cobblers, professionals, rope and sail makers,
coopers, shipbuilders, anchor smiths, currier, leatherworker,
clovers, saddlers, cordwainer, dyers, weavers, fullers, shearers, wool sorters,
beaters, carders, combers, spinners, iron bloomery smelter, forest farmers/iron pro-
ducers, Riverboat operators, peddlers of pottery and glass vessels, The Hanseatic
League, selling sailors, loose sellers, bulk traders, customs officials, The Teutonic Order,
middleman, crane operators, packers, lightermen, ballast-men, ship-master, carpenter,
leath- smaller, Lauratannein skipper, Sogdian merchants, merchant ambassadors,
A broad spectrum of the population, illiterates, newlyweds, gift receivers, gift
givers, social climbers, aspiring middle range classes, ethnic groups,
townspeople, visitors, self-confident citizens, The bishop of
Turko, richest merchants, less prosperous retailers and crafts-
men, peasants, secular nobility, ecclesiastic nobility, clerics, land-
owners, every household, towns, The Teutonic Order, sea ships,
the military, millers, The Deutch, The Undeutch, cobblers, profes-
sionals, rope and sail makers, coopers, shipbuilders, anchor
smiths, currier, leatherworker, glovers, saddlers, cord-
wainer, dyers, weavers, fullers, shearers, wool
sorters, beaters, carders, combers,
spinners, iron bloomery smelter, forest
farmers/iron producers, Riverboat operators,
peddlers of pottery and glass vessels, The Hanse-
atic League, selling sailors, loose sellers, bulk
traders, customs officials, The Teutonic Order, middle-
man, crane operators, packers, lightermen, ballast-men,
ship-master, carpenter, leatherseller, Lauratannein skipper,
Sogdian merchants, merchant ambassadors, A broad
spectrum of the population, illiterates, newlyweds, gift
receivers, gift givers, social climbers, aspiring
middle range classes, ethnic groups,
townspeople, visitors, self-confident citizens, The
bishop of Turko, richest mer-
chants, less prosperous retail-
ers and crafts-men, peasants, secular nobility,
ecclesiastic nobility, clerics, landowners,
every household, towns, The Teutonic
Order, sea ships, the military, millers, The
Deutch, The Undeutch, sorters, beaters, carders,
combers, spinners, iron bloomery

Figure 1.1: Actors at work. (Graphics by G. Hansen and P. V. Bergsvik).

Finally, we should make an important note on the intellectual asymmetry of this project. In the Middle Ages, many crafts were organised into guilds. As researchers, we have tended, albeit informally, to arrange ourselves according to a similar logic, with 'guilds' of ceramicists, bone experts, prehistorians, early-medievalists, archaeologists, historians, and so on. In this book, authors with different specialities and academic backgrounds have come together to discuss a single theme: identifying the actors involved along the line from production to consumption of crafts, with a view to better understanding the social identity and networks of the actors. This is undertaken in a sequence of theoretically informed papers that also involve novel methodological approaches. Following this template, together with the diversity of objects, regions, and approaches being taken, we hope that the book will generate useful discussion.

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Chapter 2

‘With staff in hand, and dog at heel’? What did it mean to be an ‘itinerant’ artisan?

Steven P. Ashby

This paper considers the life of the ‘itinerant’ artisan in Viking-Age and medieval Europe. Archaeologists and historians have characterised a number of trades as ‘itinerant’, and many papers in this volume relate evidence of the importance of a ‘travelling’ component in the distribution of any craft or industry. However, the volume also demonstrates the diverse ways in which crafts and trades may be structured, and even the ways in which movement itself may be framed. To date, such diversity has rarely been discussed in any detail. In many cases, in an attempt to make sense of particular patterning in the distribution of artefacts, workshops, and production debris, terms such as ‘part-time’, ‘specialist’, ‘non-specialist’, or ‘homecraft’ are invoked, with little further elaboration. To apply a label to a phenomenon is, of course, neither to describe it nor to properly characterise or explain it. More often than not, such labelling tends to close off the subject from further consideration, rather than opening it up for more detailed discussion. This, I would argue, is the case with the idea of the itinerant artisan.

More precisely then, this paper is concerned with the diverse lifeways that may have been followed by certain Viking-Age and medieval artisans. Of course, it is unlikely that any such actors operated with absolute freedom to control the ways in which they lived and worked, so we should take care not to invoke a world of

unfettered choice and infinite possibility. Nonetheless, a range of interpretative models concerning the organisation of Viking-Age and medieval craft – and the lifestyles of their associated artisans – *are* available to the researcher, and it is unfortunate that we have become straitjacketed into default ways of thinking about these issues. The aim of this paper is therefore not to provide a correction to the interpretative models currently in use, but rather to propose a range of alternatives: to promote an awareness of spatial, chronological, economic and political contingency.

The itinerant medieval craftsman

For our period of interest, there is a genuine appeal to investing certain craftworkers with an itinerant lifestyle. In more recent times, the travails of the travelling peddler are known to have provided an effective mechanism for the maintenance of connections between town and country (Jaffee 1990), and the idea that certain Viking and medieval craftspeople travelled in a similar manner should not be dismissed outof-hand. It is, however, important that we think about the model critically, paying particular attention to (1) the universality (or otherwise) of its applicability, and (2) its efficacy and suitability as a sort of explanatory metanarrative.

On a number of occasions, scholars have claimed itinerancy as an important contributing element to the organisation of various crafts (e.g. Ambrosiani 1981; Callmer 2003; Leahy 2003, 168, 171; cf. Hinton 2000; Hinton 2006, chap. 3). The reasons for this assertion are diverse, but tend to include references to (1) the nature and distribution of identifiable workshops and associated production debris; and (2) the nature and distribution of finished products, as well as appeals to 'common sense' or logics of efficiency. The evidence relating to the above points is often ambiguous, as is the nature of the relationship between that evidence and particular models of production.

Perhaps the best example comes from the study of the Viking-Age combmaker. One of the formative studies in this field was Ingrid Ulbricht's (1978) classic monograph on the bone and antlerworking from Hedeby. Ulbricht conducted a meticulous analysis of the debris from the site, and concluded that the quantities of material preserved could not represent the output of a full-time combmaker. Rather, she

argued, the artisan should be seen as a specialist, but one who manufactured combs only on a part-time basis, spending their time equally on other crafts, such as amberworking.

Ulbricht's model failed to really catch on, but it is in the context of this work that the more influential 'itinerant combmaker' model was developed. Kristina Ambrosiani's (1981) studies of material from Birka and Ribe noted a similar mismatch between the quantity of waste one might expect to be produced by a full-time combmaker's workshop and that which was actually recovered, but her interpretation was different in important respects. Ambrosiani suggested that, rather than dividing their time between two or more crafts, that combmakers were full-time specialists, but that they did not work on a sedentary basis. This would explain what has been perceived as the small size of waste deposits found at Birka, Ribe, Hedeby, and beyond, as well as providing a mechanism by which an artisan could busy themselves throughout the year in the manufacture of an object for which demand must have been relatively limited.

With some exceptions (see Riddler and Trzaska-Nartowski 2011), Ambrosiani's model has become something of a received wisdom, and it is therefore worth spending a little time on it. According to Ambrosiani's model, our mobile craftsmen moved around from market to market, and this lifestyle allowed them the time and opportunity to source raw materials, manufacture and trade in combs. In order to maximise the market for their products, combmakers frequented a number of markets. As they did so, they interacted and communicated with colleagues and rivals, forming an overlapping and interdigitated network that spanned northern Europe, via which not just objects, but also styles, technologies, and ideas were exchanged. The result was a uniform corpus of combs, within which it is impossible to distinguish combs from Norway, Frisia, or Russia.

Having set out its keys premises, it is worth our considering briefly the principles on which this model is based. Ambrosiani invokes the model in order to explain the following phenomena:

1. The small size of workshop waste deposits
2. The morphological and ornamental homogeneity of north European combs
3. The fact that the dynamics of the trade in certain combs appears

to run counter to what one would expect, given the greater availability of antler as a source of raw material in northern Scandinavia, and this region's apparent position as a consumer of combs produced further south (see Ambrosiani 1981, 38; Ashby 2012, 304–305 for further discussion).

All of these grounds are refutable, but that is not the purpose of this piece. Rather, the intention is to critically investigate the genesis of this model and the reasons for its dominance, to consider the implications of that interpretative hegemony, and to pose some alternative ways forward. It is possible, superficially, to see the invocation of a model of itinerant craft as a natural and rather unproblematic response to the above observations. The idea, however, has rather a long heritage, and subsequently carries a certain amount of theoretical baggage. We should thus take some time to consider the history of the idea of itinerant craftworkers.

A brief historiography of itinerancy

The identification of antiquity's artisans as itinerant specialists has some scholarly pedigree, and finds its origin in the early works of V. Gordon Childe (Childe 1930, 4–11; Childe 1939, 113–117). Childe explains the pan-European distribution of Bronze-Age metalwork by invoking the existence and action of itinerant smiths. The theory runs as follows: if technological developments emanated from the eastern Mediterranean, as was the dominant theory in the early 20th century, then the means by which they were diffused across the rest of Europe needed to be explained. Given that, at the time, the earliest known evidence for the development of such prehistoric innovations came from sites in the Danube region, then these phenomena must have related to the presence of exiles from the Mediterranean world. The actions of these travelling metalworkers resulted in the northward movement of the technology, catalysed by a sort of Bronze-Age arms race (Gibson 1996, 107). In this strange and dangerous world, smiths occupied a sort of liminal realm, allowing them to move freely across social and geographical boundaries. Childe himself refers to them as 'detribalized', immune to the bondage of social custom, yet woven into a complex network of specialists concerned with mining, smelting, and smithing. This model proved popular over the

succeeding decades, and while invoked out of pragmatism – in order to explain macro-scale patterning within a culture-historical framework – the smith developed particular resonances as a type of social agent: associations with liminality, freedom, even independence, and for many researchers these qualities found a significance that was difficult to shift.

Archaeological theory, of course, never stands still for long. The last three decades have seen not only paradigm shifts that have encouraged us to favour home-grown innovation over diffusionist models, but also the accumulation of a raft of empirical evidence to suggest that later-prehistoric technological development is more likely to have taken place in the Balkan region than further to the south and east. Nonetheless, the idea that metalsmiths lived a peripatetic existence has proven remarkably persistent, notwithstanding the redundancy of the concept as an engine of cultural or technological change. Of course, even if itinerant craftspeople are no longer needed in order to explain spatial patterning, it does not follow that they never existed, and the way in which we interpret their working lives is still loaded with social implications. Indeed, the perceived qualities of the itinerant lifestyle have proven remarkably persistent in the archaeological literature, such that the smith's associations with freedom and even independence have outlived his/her efficacy as a key player in social and technological change (see, for example Leahy 2003, 168).

That a model has persisted in the face of such change may, perhaps, suggest that it contains a kernel of truth. However, doubts have been raised. In the 1970s, Michael Rowlands (1971) took an ethnographic perspective on the issue of itinerancy. Rowlands demonstrated that while there is a certain amount of evidence for itinerant metalworking in contemporary non-western societies, that this is by no means the only or most important mode of operation, and that we should not assume their dominance (or even presence) in prehistoric Europe. He also argued that the archaeological data to support the existence of such a mode of organisation in the prehistoric past is in many cases flimsy, and that the persistence of the model owes much to a culture-historical paradigm, and to its explanatory power regarding the distribution of artefact types, rather than to any basis in empirical evidence. Itinerant smithing may have happened,

but if so it constituted just one of several scenarios, and should not be invoked as a model to explain patterning on the macro-scale.

More recently, Gibson (1996, 108–109) has shown that Childe's model for the European Bronze Age is not borne out either by the experience of contemporary non-western societies, or by written evidence in the historically attested context of metalworking in early-medieval Ireland. In Polynesia, Gibson has outlined how the activities of craftspeople may be characterised by a certain degree of mobility, but has noted that while such artisans may have travelled between settlements according to demand, they had established homebases, and lived a fundamentally sedentary existence. They were part-time workers, farming livestock when not producing objects: a commitment fundamentally at odds with a peripatetic lifestyle (unless we are to invoke an unlikely pairing of transhumant subsistence and craft-based itinerancy).

While this case study is of analogical interest, Gibson's review of the written evidence from early-medieval Ireland is of course directly relevant to the present context of study. Here, neither the ubiquity of ironwork, nor the much more patterned distribution of evidence for non-ferrous metalworking – which seems to be exclusively associated with the settlements and estate centres of the secular and ecclesiastical elite, so far as we can trust the source material – really sits comfortably with Childe's notion of the free, itinerant smith (Gibson 1996, 110–111). It seems, then, that caution is required; the model is well represented neither in contemporary societies nor in documented early-medieval contexts.

Clarity of context, comparison, and classification

The confusion that characterises the idea of early-medieval itinerancy no doubt stems from the rather uncritical manner in which certain models and terminologies have been applied, and it does us a service to return to first principles. Many of the methodological problems we face have long been acknowledged. Back in the early 1990s, Costin critically characterised the ways in which craft production had been studied, and attempted to refine our terminology and apparatus. I think it is fair to say that few of her ideas have been actively engaged with, at least in medieval archaeology, and it is appropriate to briefly rehearse them herein.

In the study of craft production generally, Costin has noted that there is a noticeable absence of a consistent vocabulary. Moreover, it may be fairly suggested that we have, by and large, failed to think carefully enough about what it is that the data we associate with production actually measure (Costin 1991, 2). That seems like an obvious point, but too many assumptions have been made regarding the relationship between archaeological workshop assemblages, mode of production, and site formation processes. Indeed, the latter phenomena have in many cases barely been critically considered at all. The output of early-medieval craft – in the form of both finished objects and debris – is (with the exception of items such as stone sculpture) usually easily portable. It thus stands to reason that site-formation processes are key to understanding workshop assemblages (Costin 1991, 19). One cannot really comment on the scale, intensity, or organisation of a craft or industry without detailed understanding of the means by which debris was disposed of. Sadly, too often these considerations are given insufficient attention (a problem not unique to the Middle Ages; see Costin 1991, 13). Moreover, it is not possible to draw a one-to-one relationship between the quantities or densities of debitage and intensity of production; quite apart from the taphonomic considerations identified above, multiple variables are involved, the value for most of which are unknown to the archaeologist (Costin 1991, 31). We are therefore faced with a problem of equifinality, wherein multiple scenarios could conceivably result in the same evidential fingerprint.

It should also be noted that production models have traditionally been derived from empirical analyses of limited datasets (Costin 1991, 8). Notwithstanding the usefulness of the detailed analyses of individual sites or regions, it is important that we look at production evidence in comparative perspective: numbers alone are meaningless (Costin 1991, 2). This rather obvious fact has been too often overlooked in studies of early-medieval craft, with vastly different quantities of waste being described as ‘small’, and thus as insufficient evidence to support a hypothesis based on full-time sedentary activity. In sum, I am unconvinced that a rigidly quantitative approach to the analysis of working waste is a reliable way of telling us anything about the nature of craft production; there are simply too many unknowns. Costin (1991, 32) has proposed an alternative – if much

more difficult – means of characterising intensity of production. This holistic approach is dependent on the analyst paying close attention to evidence for *other* actions undertaken onsite; this might facilitate a more believable reading of the organisation of craft *vis-à-vis* domestic and agricultural activities (Costin 1991, 32).

One of Costin's key points relates to the lax use of terminology, and in particular what we mean by 'specialists'. Costin argues that it is erroneous to characterise craft by reference to a specialist: non-specialist dichotomy. This is, again, a basic point, and one that has been considered in Scandinavian archaeology (see, for instance, Hagen 1994) but in Britain we all too often we fall into the trap of pigeonholing artefacts as the result of 'specialist skills' on the one hand, or 'homecraft' and 'expediency' on the other (see Hagen 1994). Costin (1991, 4) makes the point plainly: craftworkers can be specialised both to different degrees, and in different ways. For instance, we should not assume that, just because a craft appears to be particularly complex or highly skilled, it was organised in a particular way (undertaken by a full-time, apprenticed craftsperson, for instance). Thus, craft specialisation is non-dichotomous, but neither can it be represented on a continuum; rather it is multi-dimensional (Costin 1991, 5).

Another simple but important caution is that we should resist the urge to concatenate or pigeonhole crafts. How often do we see reference to 'the status of the smith'? What do we mean by this precisely? The craft of smithing was a diverse one in terms of skills, materials, products and, no doubt, organisation. Calling on ethnographic study, Rowlands (1971, 210–211) reminds us that a skilled artisan attached to an aristocracy need not be subject to the same conditions or organisational structures as one producing tools for the general population. Yet both actors might be referred to as smiths, and, given what we know from literary sources about the former, it is all too easy to apply such ideas to the circumstances of the latter.

Lessons from Ethnography

A key point that is emphasised in the ethnographic literature is that of diversity, and we have no reason to assume that past crafts and industries were organised in any more homogeneous a manner (Rowlands, 1971, 214). This anticipates a point I have made about

combmaking more recently (Ashby 2011b, 2012, 2013); we should not seek to find an all-embracing model for the organisation of a craft, as local and regional variations in phenomena such as politics, economic structure, settlement pattern and population density may all impact on the manner in which a craft is organised (see Rowlands, 1971, 214), to say nothing of the impact of competition, market forces, topography and access to raw materials.

Notwithstanding this diversity, the ethnographic record does highlight a number of more specific points that may be important for our understanding of early-medieval craft. These points go back to Rowlands' (1971) survey, which even now remains a useful reminder to think more critically about how craft was practised in antiquity. (1) Full-Time Craftsmen are Rare. (2) Itinerancy is Rare. (3) Raw Material Supply need not be rigidly structured. (4) There need not be only one mechanism of exchange. And (5) Sustainability is not dependent on a steady supply of work. In short, Rowlands (1971) cautions that we should be careful not to uncritically accept the idea that craftworkers were free-roaming individuals, and certainly not that they occupied any particular 'liminal' sense of social place. There is a real danger in attempting to a apply a single explanatory model to craft in diverse contexts, and even if the presence of one particular form of craft organisation can be demonstrated in a certain situation, then we should not uncritically extrapolate from it, assuming the same organisation or structures across space and time. Evidence for the existence of a certain way of working is a long way from evidence that that system explains archaeological phenomena such as distribution patterns on a wider scale. Moreover, logical reasoning, received wisdom, and intellectual rhetoric are no basis for the formulation of such a model. We must be led by the evidence.

It is interesting that Rowlands' argument, written over forty years ago, is closely echoed by my own suggestions – independently developed – regarding Viking-Age combmaking (e.g. Ashby 2011b; Ashby 2012; Ashby 2013). Moreover, these ideas have not been widely accepted, or at least are yet to find their way into the mainstream of early-medieval archaeological debate. Neither is the situation unique to bone- and antler-working. Early-medievalists frequently find themselves without the theoretical or methodological apparatus necessary to test for the operation of itinerancy (e.g. Wicker

1994). Wicker's call for further study of methods of manufacture (as opposed to stylistic traits), in order to distinguish between the movement of objects and the movements of craftsmen, was welcome, but it is noticeable that she was also forced to plead for the development of 'models for mechanisms of craft distribution' (Wicker 1994, 70). One might well ask why these questions are not yet close to finding their resolution, given that prehistorians were debunking itinerancy as an agent of diffusion as far back as the early 1970s. More often than not, early-medieval syntheses appear to accept existing models of craftworking as packaged. Ambrosiani's model, in particular, is often accepted as fact despite the fact that (though she invoked it as an explanation for patterning in comb distributions across northern-Europe) the model was based on data from the Baltic region alone (with particular emphasis on two sites: Birka, Sweden and Ribe, Denmark). This takes some explaining.

Early medieval itinerancy: a critique

In the case of Viking-Age comb production, while a logical case for itinerancy may be made, I have questioned its evidential basis (Ashby 2006; 2012; 2013), and suggested that similar evidence, in different contexts, might even be taken as an indication of sedentary industry. Indeed, the key point is the significance of context; we should not assume that the same model persists in all regions, under all conditions, at all times. Thus, my point is not to *dismiss* the possibility that certain artisans operated on an itinerant basis, but rather to argue that to label a craft as 'itinerant' is not to offer an explanatory model.

We must think more carefully about the different means by which an early-medieval craft may have been organised. In what follows, I will propose something of a typology of organisation, but it should be remembered that this is a simplification; the reality is that crafts may be organised along a continuum, from pure sedentism to perpetual movement. Of course, a number of crafts may have grouped in the middle of this spectrum, but such a broad conclusion is rather unsatisfactory, and as we will see, even this view is rather two dimensional. In what follows then, we will discuss some of the possibilities that may have pertained, and in what circumstances. This has the benefit of developing our question from a purely economic one into something more social: what did it *mean* to be itinerant? How

were the lives of our actors organised?

Key variables

In order to address these questions, we need to think about the dimensions along which the lives of artisans were structured. Costin (1991) has shown how we should consider production in terms of context (the social, economic, and political situation of the work undertaken), concentration (distribution of craftspeople across the landscape), scale (size and organisation of production unit), and intensity (the amount of time spent by an artisan on their craft; for reasons outlined above, I believe this parameter to be archaeologically problematic, and it will not be dwelt upon herein). However by studying craft production along our other three dimensions (context; concentration, and scale), we may be able to offer a particular gloss on the question of itinerant craft. For our purposes, the key dimensions are *scale* and *freedom*.

First we need to consider the geographical scale on which our craftworkers were moving. We may envision them as moving between places of production and exchange, or between multiple market sites, either on a local, regional, or supra-regional (i.e. long-distance) scale. The distances are important, as it is not simply a question of 'scaling up' or down the same system. Rather, small and large-scale systems each have their own implications for organisation and logistics.

Furthermore, we need to account for the temporal scale of movement. We should consider, for instance, the regularity with which an artisan revisited the same spot. As we have seen in the work of Sindbæk (2005; 2007; 2008) and others, the nodal points in networks of long-distance exchange tend to be situated at places where communication routes converge. Indeed, such sites are often located at the nexus of winter and summer travel routes. Moreover, following Sindbæk, the 'hinterlands' for these nodal points must be seen to include the waterways that feed them with goods, materials, and information, rather than simply the landscape of rural estates and settlements that are usually taken to support a trade centre. This, of course, has implications not just for resourcing in terms of food and drink, but also for the supply of the raw materials fundamental to craft production. We may agree that unless we envision artisans bringing materials with them when they arrive at a site, then they

must be supplied by the network of contacts extant at that site. In a network of long-distance exchange, one must envision the raw materials of glass-, bone-, and metalworking being brought in from various rural estates for trade and use at the nodal points. However, on a more local scale, such a wide network is not available to the craftworker. Certain settlements, for instance, may have a need for crafted products, yet lie out with the regions in which iron ore, glass, or antler are readily available. If our artisans are peripatetic, when they travel to such sites, their work is dependent on either (1) bringing materials to market with them, (2) local resourcing through personal collection from the immediate surroundings, or (3) local resourcing through organised supply upon arrival. None of these arrangements are robust or infallible. Clearly (1) is impractical where materials are bulky or heavy, while (2) suffers from the same problem, and is also dependent upon local knowledge about combmaking, and option (3) relies upon a well organised and controlled structure of supply. The latter scenario might function effectively within a well administered network of long-distance exchange, in which the hands of powerful actors must have been important. However, it is more difficult to imagine how it could have been facilitated and controlled on a more local scale. If an artisan were to arrive at market without the necessary materials, they would need either local knowledge in order to either collect them oneself, or contacts in order to ensure efficient supply once they arrived at market. Moreover, one might expect that any local authorities or institutions with power over material supply or property would prefer to do business with a limited number of people already known to them. Such a scenario would, indeed, be preferable to both parties. The small-scale peripatetic craftworker then, was very much rooted in local community and landscape. One must question whether it is really appropriate to refer to such an individual as itinerant; it may be better to think of them as *community artisans*.

These individuals need not have been full-time craftworkers. They may have undertaken agriculture or other tasks for part of the year, in order to secure a stable income. In producing and trading their wares, they may have moved from town to town, or market to market, but throughout maintained a small farmstead or holding: perhaps leaving family members at home to keep things running. Such a lifestyle fits

well with certain crafts routinely considered as itinerant activities. Antlerworking, for instance, is fundamentally a *rural* craft in terms of its raw materials. We may therefore conceive of such artisans as having had a rural homebase, but travelling to larger towns and markets in the summer months, when they had gathered sufficient materials to manufacture objects. Where the market was large enough to sustain it (perhaps in York or Lincoln, for instance) they may have stayed at one property throughout the season, but we must assume that for many craftworkers it would have been necessary to travel around more, exploiting smaller settlements and beach markets for shorter periods of time. Depending on the scale of travel, we may envision either regular back-and-forth travel between the rural homebase and various markets, or a cycle of 'seasonal itinerancy', moving from market to market, before returning home once either raw materials or demand had dried up. Of course, such scenarios must remain speculative in the absence of clear evidence for their operation, but they remain no less likely than currently accepted models.

Models in practice: a case study

It is, of course, only possible to go so far in the abstract, and in what follows I intend to illustrate some of these proposed scenarios through reference to my own work, and that of others, on combmaking in Viking-Age Britain and Scandinavia. Of course, it is not suggested that the detail of the following will be directly applicable to the study of other crafts; that is directly antithetical to that which I have been trying to achieve here (namely an awareness of contingency and the possibility of variation). Rather, the study should serve simply as an example of the ways in which the ideas outlined above might be played out in the archaeology.

As we have seen, Ambrosiani has argued that the combmakers of Birka, Ribe, and beyond operated on an itinerant basis. The evidence behind her model is as follows: (1) 10th-century comb-forms appear to have appeared first in Denmark, from where they spread northwards into Sweden and beyond. If they were produced by sedentary artisans, we might have expected the direction of 'diffusion' to have been precisely the reverse, given the much greater availability of antler in the north. (2) Combmaking workshops appear to have operated at a

relatively low intensity, with a small output, given the small size of deposits of manufacturing debris. (3) Looking at the finished combs found at sites across northern Europe, there is very little variation in either form or decoration.

There is little need to go into the arguments against this evidence in detail; I have done so at length elsewhere (e.g. Ashby 2006; Ashby 2012). However, it is germane to briefly recap the key evidential and logical problems. The first point is relatively easily dismissed, as an economic assumption with little to back it up. The equation of small deposits of workshop debris with a limited output represents a more considered argument, but is dependent on negative evidence, and makes a number of assumptions about the relationship between scale, intensity, and logistics of production, not to mention the complex question of site formation and taphonomy (Costin 1991). It also begs the question of frame of reference. What precisely, qualifies as a 'small' production deposit? What quantities would be required in order for us to postulate the presence of a sedentary, full-time craftworker? The question cannot be answered of course, because in itself, quantity of output is not an appropriate measure of scale or character of production. Finally, it is not a given that the actions of a network of peripatetic artisans would produce a corpus of objects uniform in aesthetic character. Rather, even if one accepts this superficial homogeneity (which I have elsewhere shown to be an overgeneralisation; Ashby 2011a; 2013), a case might be made that such similarity could result from a small number of centralised 'factories' provisioning wide areas.

Let us, for a moment then, assume the uniformity of combs and the small size of manufacturing deposits as meaningful and well attested, and take Ambrosiani's model as the most parsimonious solution available to us. What would be the logistical implications of artisans working within such a framework; what would such a model *look like* in action? And what would be its broader archaeological signature? If, as Ambrosiani proposes, itinerant artisans worked within restricted but overlapping geographical territories (the mechanism by which it is envisioned that information, technologies and ideas were communicated), then one might well ask about the number of production sites in the network. Were such sites limited to Birka, Ribe, and entrepôts of comparable scale and significance (Sindbæk's 'nodal

points')? Or are we missing evidence of a number of smaller production sites, perhaps akin to the beach markets documented in coastal southern Scandinavia (Ulriksen 1994; 1998; 2004)? Given the distances between the large northern European entrepots – hundreds of miles in some cases – the former scenario does not sit well within Ambrosiani's model as originally formulated. However, it does become feasible if we believe in the existence of a community of crafters and merchants travelling between the nodal points or hubs of a vast Baltic network (as proposed by Sindbæk (e.g. Sindbæk 2007; 2008).

None of this is to say that itinerancy *did not* happen. Indeed, there are logical reasons to believe that, at least in certain situations, such a model would prove an efficient and effective mechanism for production and trade, particularly over long distances. Rather, I simply suggest that the evidence presented by Ambrosiani does not demand to be interpreted in this manner, and that in many cases we should consider other alternatives. Moreover, it should be pointed out that Ambrosiani at least presented her model and the evidential basis on which it stood clearly and with minimal ambiguity, making it easy to critically analyse it and assess its applicability to diverse contexts. It is important that we do this, rather than accept it as the default position for the understanding of early-medieval combmaking, or of craft more generally. Moreover, I believe that we should cease attempting to label the organisation of craft, but rather turn our attention to explaining some of the requirements of such an economy, however organised. For instance, by what means did craftworkers acquire raw materials? How did they identify a market in which to trade?

In answer to these questions, it is interesting to note that Gibson finds the most important element in the organisation of craft production to be access to raw materials (Gibson 1996, 111). Strikingly, Sindbæk has shown that certain crafts are almost exclusively found in his entrepôts – glassworking and the casting of non-ferrous metals in particular – and he explains this with reference to their dependence upon access to imported raw materials (Sindbæk 2005, 278). However, it is notable that the production evidence for certain crafts often thought to have an 'itinerant' basis (such as antler- and iron-working) appears to be geographically more restricted than that relating to the manufacture of objects organised along more

certainly ‘sedentary’ lines, such as textiles (e.g. Callmer 2002; Sindbæk 2007). No doubt this constitutes the solution to a complex array of problems, including (but not limited to) ready access to a market, as well as to raw materials. Nonetheless, the latter must have been a concern, and if the elite controlled production of sources of stone and metal ore (as we must assume them to have done; see contributions by Andersson, Baug, Rundberget, and Schou, this volume), then perhaps they may also have found ways in which to exert authority over the supply of raw materials such as clays, or even more portable/mobile sources such as leather, furs, or bone and antler. In the absence of detailed documentary evidence for the role of, for instance, a forester in the collection, storage, and distribution of shed antler, this suggestion must remain speculative. It is, nonetheless, interesting to reflect upon the possibility that raw material supply was dependent upon some kind of structured network. In such a situation, even a politically ‘free’ combmaker could never really see themselves as free, bound as they were to this framework of control-by-supply.

Discussion: a typology of itinerant trade

In synthesis then, we must note the need for clarity regarding whether the subject of study is production or distribution; though the manufacturers and traders of combs may have been the same people, this was not necessarily the case, and we should be clear about what it is that we are looking for, as production and distribution will be discretely evidenced in the archaeological record. Such clarity has not always been forthcoming, and early-medieval studies of craft have tended to lack the systematic attention to detail that is characteristic of studies of prehistoric technology, and which is necessary if we are to construct believable models of the nature of craft in the period (see for instance Brumfiel and Earle 1987; Costin 1991 and references therein). In closing, we may go beyond the sedentary: itinerant dichotomy, and offer some more nuanced models (Figure 2.1 and Figure 2.2). These might even include a ‘sedentary homebase’ situation, wherein craftworkers were permanently based in settlements of various forms and sizes. Local market visits might have been possible in a variation on this arrangement, but the artisan would have had to return to their homebase on a regular basis. Alternatively, they may have maintained a homebase, but visited

markets on a circuit, returning only to their home on a seasonal basis. Finally, they may not have had a homebase at all, living in perpetual movement: a true itinerant.

This schema of course still simplifies the situation, and represents an array of ideal scenarios, but it nonetheless constitutes an advance on extant models. No single model perfectly reflects any particular archaeologically attested situation, much less the wider geographical patterning. Moreover, we should not see these scenarios as dichotomous or mutually exclusive, but as points along a continuum: better yet, points within a multidimensional scatter.

That is, of course, a little evasive, and the reader may justifiably ask which model the author prefers. I tend to see combmaking, in England at least, as an urban artform, but with elements of rural craft. The materials after all, were fundamentally rural. In many towns, it is conceivable that the materials were acquired via some centrally administered system of provisioning. However, all combmakers need not have worked in the same way, and there is no reason to assume that the same system pertained in all contexts. Rather, the particularities of organisation and logistics would be contingent upon a somewhat unpredictable combination of environmental factors (including local politics and economics as well as settlement structure, landscape and connectedness) and responses (driven, no doubt, by efficiency, but also by acquired knowledge, social norms, beliefs, and traditional 'ways of doing'). As a result, we might expect a craft in Lund to look very different to its equivalent in Lincoln. Thus, depending on local structures controlling supply, accommodation, rents and taxes, some combmakers may have been permanently town-based specialists, some may have been in almost perpetual motion, while it is even possible that some were free peasants practising subsistence farming, perhaps rearing livestock, and supplementing their income with craft production. Such artisans would have been settled in the countryside, but travelled to town on a seasonal basis to make and sell objects. For these actors, catch-all terms like 'sedentary' and 'itinerant' are insufficient. These individuals were part-time, but not undertaking a second craft. They were also fundamentally mobile, though anchored rather than peripatetic.

However the craft was organised in any given situation, we must believe that it *was* organised. Just as Sindbæk (2005) has shown the

importance of routinisation to long-distance trade, so structures were needed in order to control supply of materials, access to appropriate properties for manufacture and/or trade, as well as rent and tax. Any image of the travelling artisan as a sort of unfettered, Micawberish tinker must be exposed for the romantic fantasy that it is. These actors may not have stayed in one place for their whole lives, but they were nonetheless anchored into a system, tethered to particular movements between particular places, and meetings with particular people.

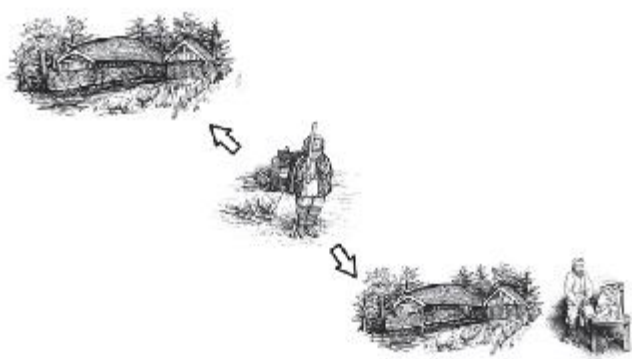
Postscript and acknowledgements

These thoughts have emerged over a decade or so of research on the subject of craft in general, and combmaking in particular. Over this time, my perspectives have been informed and transformed through discussion (and argument) with a number of scholars: a list too long to present here. Nonetheless, I should pay particular thanks to James Barrett, Arthur MacGregor and Ian Riddler, who from an early stage encouraged me to question the paradigms in which we have been working. It goes without saying, of course, that all errors and idiosyncrasies remain the author's own.

Sedentary Craft

Base: Market Site
Mobility Level: Sedentary
Flexibility: Full-time OR Part-time; various methods of organisation
Key Market: Inhabitants of Market Settlement
Other Markets: Visitors from hinterland, and from further afield if site is a key entrepot

Frequent Mobility

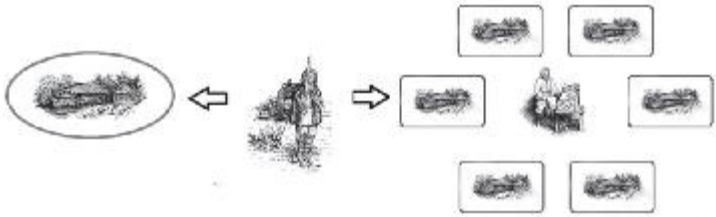


f

Base: Away from market site
Mobility Level: Small-scale. 'Trade visits' made to local market, returning regularly to homebase
Flexibility: Full-time OR part-time; various methods of organisation
Key Market: Inhabitants of market settlement
Other Markets: Vis tors from hinterland; visitors from further afield if site is a key entrepot

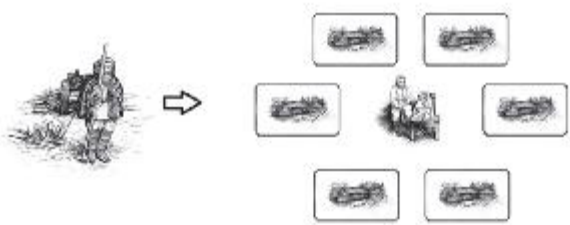
Figure 2.1: An outline typology for the characterisation of craft activity with respect to organisation and mobility: sedentary craft and frequent mobility. (Drawings by A. Scott).

Seasonal Mobility



Base: Away from market site
Mobility Level: Small-scale. 'Trade visits' made to local market, returning regularly to homebase.
Flexibility: Full-time OR part-time; various methods of organisation
Key Market: Inhabitants of market settlement
Other Markets: Visitors from hinterland, or from further afield if site is a key entrepot (most will be)

True Itinerancy



Base: None
Mobility Level: Large-scale; permanently travelling on circuit, throughout the year
Flexibility: Full-time
Key Market: Inhabitants of various market settlements
Other Markets: Visitors from hinterland of each market settlement; visitors from further afield if site is a key entrepot

Figure 2.2: An outline typology for the characterisation of craft activity with respect to organisation and mobility: seasonal mobility and true itinerancy. (Drawings by A. Scott).

The title of the paper – which may until now have seemed a little opaque – refers to an iteration of a traditional English folk tale known as the *Tinker of Swaffham*. It tells the story of a hard-up Norfolk pedlar who travels to London Bridge on the strength of a dream, in order to meet a man who will tell him how to make his fortune. After days of hopeless waiting on the bridge, he is eventually given information that leads to his finding a hoard back in his hometown. If anachronous, the story at least furnishes us with a useful allegory: the tale of a travelling tradesman who travels to town with no real plans for his survival or upkeep; only that he needs to do it to make his fortune. It turns out well for the tinker of Swaffham, but it is, after all, a fairytale.

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Chapter 3

Itinerant craftspeople in 12th century Bergen, Norway – aspects of their social identities

Gitte Hansen

Combmakers, shoemakers and metalworkers in early medieval (11–12th century) Scandinavia were artisans that produced *affordable crafts*, that is, accessories and household utensils that people used in their everyday lives, and which *ordinary* people, as opposed to an exclusive secular or ecclesiastic elite, could afford. The artisans were what we may call *anonymous* or *voiceless* actors; through their products and production waste they are often identified in the archaeological data, but are seldom (if ever) encountered in other contemporary sources. The craftspeople lived in times that saw significant social and economic change. Christianity and stronger central kingdoms were getting a foothold in Scandinavia, leading to the formation of new political, social and cultural networks that must have impacted the development of products and the life even of anonymous artisans. Moreover, new urban centres were established at this time, and grew in strength and importance as arenas and markets for artisans and consumers of crafts. Bergen in Western Norway was one such place.

In Scandinavia, pagan grave traditions ceased during the 11th century, so we no longer have the link between individuals and grave goods that makes it possible to approach various aspects of the social identity of actors through such datasets. Furthermore, records of crafts and guilds are not yet available. Patterns in the material remains from

archaeological settlement and production sites are thus our key source for these actors. Over the last decades, the crafts of combmaking, shoemaking and metalworking have been studied through analysis of large datasets taken from assemblages excavated in medieval Scandinavian towns. The primary interest has been in production techniques and meta-questions such as 'production as a driving force for the rise of towns' or 'the organisation of crafts' (e.g. Schia 1975; Christophersen 1980; Broberg and Vretemark 1984; Flodin 1989; Bergquist 1989; Nordeide 1989; Ros 1992; Rytter 1997; Tørhaug 1998; Rytter 2001; Hansen 2005; Wikstrøm 2006). Thus, we still have little empirically-substantiated knowledge regarding the craftspeople's social identities (cf. Jenkins 1996); here I am in particular referring to their age, gender, occupational identity, and aspects of their social status (but see Enoksen 2009, Pedersen 2010).

In the 12th century, combmaking, shoemaking and metalworking took place in Bergen, western Norway. In previous work I interpreted the traces of some of these activities as reflecting the actions of itinerant craftspeople (Hansen 2005). The present case study of aspects of the social identities of itinerant craftspeople takes its point of departure in that study. In this article it is thus assumed that the craftspeople were itinerant, in the sense that they did not reside in Bergen on a permanent basis, but rather paid the young town short term visits, while working in a larger (undefined) geographic area. In what follows, a number of issues of relevance to our understanding of the craftspeople's social identities are addressed.

We are first going to look into the demographic composition of the workshops; were the travelling craftspeople all adult men, or could a workshop be composed of both men and women, old and young (cf. Ambrosiani 1981, 162; Pedersen 2010, 321)? In any system in which skills are taught through practice, one would expect a workshop to be composed of people of different ages (e.g. Ravn 2012). In pre-modern societies, exemplified by accounts from 18th-early 19th century Denmark, children as young as 6 years were thus seen as fit for participation in professional craft production such as lace making and knitting, and from a young age they also participated in sales trips to markets where products were sold (cf. Tang Kristensen 1902, 6; Mylius Erichsen 1903, 119). We must therefore assume that within the crafts treated here, children would have become apprentices and, in

time, learned all aspects of the trade including how to travel and where to go.

Aspects of the social status of itinerant craftspeople are also addressed, by considering how the craftspeople were received as a social group in the town (cf. Pedersen 2010, 315). One might usefully ask whether the artisans, who clearly constituted distinctive social groups, were integrated in urban life, or if they were secluded from the townspeople. Of course, particular kinds of production or people may have been excluded from built-up areas inhabited by townspeople for a range of practical reasons. The fire hazard connected to metalworking, and the smell and voluminous quantities of waste produced as a result of the tanning and working of leather thus occasionally oblige smiths, tanners, and shoemakers to carry out their production in the outskirts of towns. This situation is particularly seen in late 13th-century Bergen (Helle 1982, 42, 282). Seclusion of groups of people, however, may have its root in more than simple pragmatism; it may be explained at least partially in prejudices towards strangers, and people of different ethnic or social groups. It may therefore be informative to investigate the relationship between the sedentary populations of our early towns and the communities of itinerant craftspeople to see if the craftspeople were treated as a socially accepted group by contemporary townspeople.

As a third theme the occupational identity of the craftspeople is addressed. We will discuss whether combmakers, shoemakers and metalworkers were specialised artisans that mastered just one group of raw materials, or if they were 'Jacks of all trades', as suggested by some (e.g. Christophersen 1982, 115; Andrén 1985, 77; Flodin 1989, 129; Ros 1990; Ros 1992; Rytter 2001; Pedersen 2010, 315).

Finally the question of the craftspeoples' status as free or un-free is addressed; what kinds of social ties bound them to the consumers of crafts; were they un-free or semi-free individuals with feudal-like ties to the consumers of crafts (e.g. Andrén 1985, 76)? Or could they have been free, small-scale producers (e.g. Christophersen 1982, 118)?

The questions that are going to be dealt with here are not entirely new to research, but they are seldom given special attention on an empirical basis. In most studies, crafts have been treated individually according to raw materials. And with few exceptions (e.g. chapters in Iversen *et al.* 2005; Enoksen 2009; Pedersen 2010) the approach has

been quantitative, where general distribution patterns in large datasets are interpreted. In the present study, multi-level, contextual, quantitative and qualitative approaches are applied to the traces of combmaking, shoemaking and certain kinds of metalworking in early medieval Bergen. The aim, to the extent to which this is possible, is to 'turn every stone' and thus avoid missing subtle or unexpected patterns in the material. Through a case study of the Bergen material I wish to establish if such approaches can provide empirically based insight into aspects of the social identities of early-medieval itinerant craftspeople working in reindeer antler, leather and metal. Before going on with these analyses, an introduction to Bergen, the archaeological sources and the general methods applied are called for.

Bergen and the archaeological sources

Bergen was most probably founded sometime during the 1020/30s, when plots were laid out in the town area. Herein, our focus is on the 50-year period between the 1120s and *c*. 1170: 'the mid-12th century'. Activities were sparse in the town before this time, but Bergen was now overcoming its initial growth problems, and the contours of the later so important trading town and ecclesiastic centre were emerging. The medieval town was located around the Vågen bay (cf. Figure 3.1). In the mid-12th century, the royal seat and a cathedral were under construction at the Holmen peninsula, while at the Nordnes peninsula, two abbeys, a nunnery and a hospital were being erected. At today's Bryggen, on the northern shore of Vågen, some areas under the foot of the Fløyfjellet hill and most of the plots on the waterfronts of Vågen and the Veisan inlet were permanently inhabited. By the waterfronts town yards, typically consisting of twin rows of wooden buildings with a central passage way, stretched from the tidal zone to the inner part of the plot. In today's Vågsbunnen, the picture is less clear, but the area was certainly taken into use for settlement purposes (Hansen 2005). In the case study Bryggen and Vågsbunnen constitute 'the town area'. This is the zone in which traces of itinerant craftspeople have been found. Nowhere else do we find traces of ordinary secular settlement during this early period of the town's history.

Archaeological and environmental evidence, as well as a sparse written record provide the source material relevant to the reconstruction of the first years of Bergen's history as a town. With

good preservation conditions for most materials, the archaeological evidence is diverse. Excavated data has been collected since the mid-1800s, from sites ranging from small ditch observations up to the large Bryggen site, excavated between 1955 and 1979. All in all evidence of secular settlement and activities from about 2600 m^2 and numerous ditches is relevant for the present study. The artefactual data include some 9100 finds – derived from 24 plots/analytic units. The sources are largely well-dated, but have been documented with varying degrees of precision, given the extended period over which archaeological investigations have been undertaken. This has, as we will see, bearings for the level of resolution when it comes to consideration of the contexts of activities (for an overview see Hansen 1998; Hansen 2005, 45–47).

In the multi-level analysis, the 'town area' serves as the *macro-level* analytic unit. No artefacts from Holmen or Nordnes have been assigned to the mid-12th century. The town plot serves as the *meso-level* analytic unit, and where plot boundaries have not been reconstructed, pockets of culture layers constitute the meso-level analytic units. In the early phases of the town's history it is assumed that the permanent residents of a plot constituted an extended household including tenement owners with family and miscellaneous staff. The mid-12th century town plot may contain activity traces accumulated over as many as 50 years. Some finds are *in situ*, reflecting the situation at the end of the period between the 1120s and *c*. 1170. Other finds were recovered from secondary locations, albeit from the plot where they were found, and in all likelihood reflect activities that took place there (for a discussion of garbage disposal in the early town, see Hansen 2005, 48–52). When possible and relevant, *in situ* finds from more restricted contexts (such as buildings or individual culture layers) are studied on a *micro-level*. At the meso-level, wherein comparative analyses of material between plots are undertaken, and where the absence of finds may be interpreted as a lack of certain activities rather than as a result of crude excavation methods, analysis is only considered feasible for four plots (6/C, 6/D, 6/E and 6/G), all at the Bryggen site. The material from these plots should be quite reliable in terms of representativity, since more than half of the available building land (in addition to parts of the harbour area) belonging to each of the four town yards on these plots has been

excavated. Furthermore the number of artefacts retrieved per m^2 here is considered satisfactory (Hansen 2005, 52–53). Nonetheless, the representativity of artefact groups from activities that are relatively unproductive (in terms of the quantity of remains they leave behind) is, as always, a methodological theme that deserves attention, and this will be discussed in due course. When analysing *in situ* finds on a micro-level, a qualitative approach is applied, wherein the presence of finds as opposed to the absence is given weight.

Debris from combmaking, shoemaking, and different kinds of metalworking has been found on 15 of the 24 artefact producing plots/analytic units in the town area. Figure 3.1 shows the plots and analytic units where debris from the crafts is found. The presence of artefacts is shown by symbols. Figures 3.2–3.4 outline artefact numbers and in Figure 3.5 an outline of evidence for activities referred to in the case study is given. As already mentioned I interpret the remains as traces of itinerant professional craftspeople, who came to Bergen on short visits. They produced primarily for an intra-urban market, and products were sold to people that stayed at different plots (Hansen 2005, 184, 189, 193, 204). With reference to models for the nature and organisation of Viking-Age and medieval crafts and professionalism (Ambrosiani 1981; Christophersen 1980; Hagen (1988) 1994), this interpretation is empirically based on (1) the presence of small amounts of production waste located on several plots in the town area (cf. Figures 3.2–3.4), and similar distribution patterns for combmaking- and metalworking waste in contemporary Scandinavian towns, (2) the similarities between finished objects and discarded blanks found in Bergen, (3) the quality of finished objects found in Bergen, (4) the presence of 'twin' products in different consumer households (twin products are objects that are so similar that the same artisan or workshop may have made them), and (5) the similarities of Bergen-finds with contemporary objects spanning at least medieval Norway, Denmark, parts of Sweden, Greenland, eastern England (York) and Russia (Novgorod). Metalwork was not studied in detail, since few of the finds were available for research. As a consequence, only a rather crude distinction between fine metalworking/casting and iron working (smithing/forging) could be made, and this is upheld here. It was thought probable that some blacksmiths were permanently settled in Bergen, whereas some

ironworking and fine-metalworking artisans were itinerant (for a full account and references, see Hansen 2005, 157–204). With this as a starting point, I will re-venture into 12th-century Bergen, and discuss various aspects of the identities of its itinerant craftspeople.

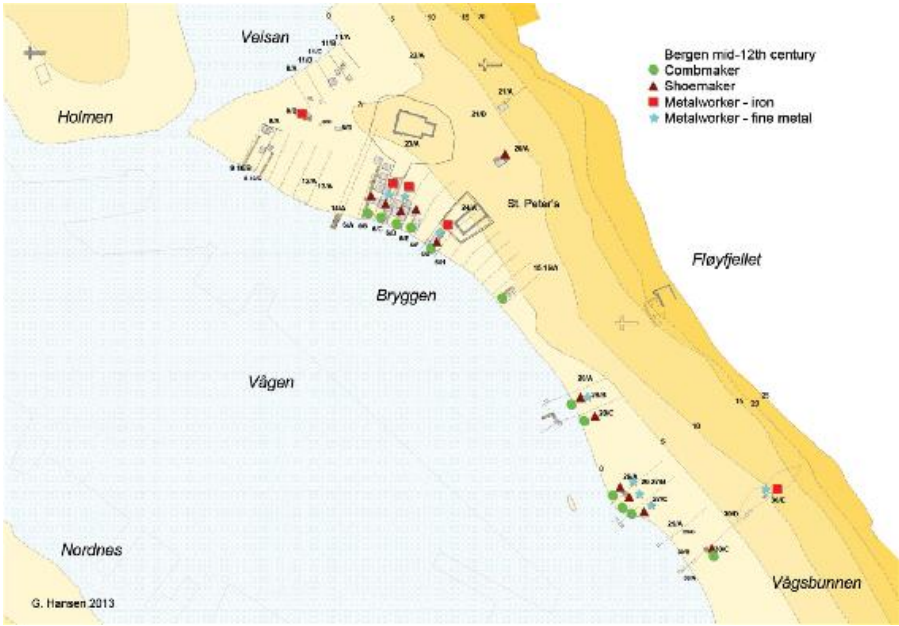


Figure 3.1: Combmaking, shoemaking and metalworking in the town area in mid-12th century Bergen. The presence of artefacts that witness production on plots/analytic units is shown by symbols. Plot boundaries are marked by full and dotted lines.

Craftspeople: age and gender

The crafts of combmaking, shoemaking and metalworking are commonly associated with male actors, an association that finds support in grave finds from the Iron Age as well as from (for instance) pictorial sources from the later medieval periods (e.g. Christensen 1986), so I shall not address the presence of men in particular, but take for granted that they were here. The age and gender of the travelling craftspeople will be approached through two sets of data – *finished products and production waste* – as well as *spatial patterns* in the archaeological material that have not previously been acknowledged.

Regarding finished products and production waste, it is reasonable to expect that on occasion the work of young apprentices would have fallen below the expected standard. The quality of products and discarded blanks in the town area may thus provide some insight into the question of whether young apprentices were present onsite. In what follows, this is pursued in relation to one group of craftspeople: the combmakers. As for the spatial patterns: a detour into the distribution of activity traces on plots 6/C–E and 6/G is called for, in order to show that plot 6/G can be considered a special context in which itinerant artisans can be studied without too much 'background noise' from activities carried out by other people.

Plot/unit	Combmaking			
	Comb blank	Comb offcut	Tools	Antler offcut
6/B				1
6/C		1		1 (10)
	(4)			
6/D				19
	(1)			(21)
6/E				(2)
6/G	12 (32)	1 (30)	(2)	(5)
15–16/A				*(2)*
26/A				1 (5)
26–27/B				1 (9)
26–27/BC				(9)
28/B				(7)
28/C				(9)
30/B				*(1)*

Numbers in: **bold** – well dated sources, in *'italic'* = less well dated material, in (brackets) – redeposited finds, without brackets – *in situ* finds.

*Figure 3.2: Bergen 1120s–*c. *1170, numbers of artefacts signifying combmaking (N = 185) (Reworked from Hansen 2005, Tab. 32).*

Plot/unit	Primary waste (shoemaking)	Last	Secondary waste (other leatherworking)
6/B	(4)		(2)
6/C	6 (51)	(1)	(20)
6/D	16 (49)		30 (51)
6/E	(21)		2 (13)
6/F			(1)
6/G	268 (8)		1 (2)
20/A	*(1)*		*(1)*
26/A	1 (1)		(1)
26–27/B	(2)		
26–27/BC	(33)		(5)
27/C	(41)		(1)
28/B	(2)		
28/C	(2)		
30/B	*(10)*		

Numbers in: **bold** = well dated sources, in *'italic'* = less well dated material, in (brackets) – redeposited finds, without brackets – *in situ* finds.

*Figure 3.3: Bergen 1120s–*c. *1170, numbers of artefacts signifying shoemaking and 'other leatherworking' (N = 643). Waste from primary production: pieces of cut leather with no stiches: (shoemaking) and waste from reuse/secondary production: pieces of leather with some cut edges and some edges with seams: ('other leatherworking') of leather. (Reworked from Hansen 2005, Tab. 35)*.

Daily life in the town area of mid-12th century Bergen was generally characterised by a wide variety of activities (Hansen 2005, 157–218). When we zoom in to the plot-level, it is, however, clear that the spatial organisation of activities was nuanced: not all town plots were used in the same way. Figure 3.6 shows a number of significant daily activities and groups of finds on plots 6/C–E and 6/G. Combmaking and shoemaking activities are found on all four plots, and metalworking debris is found in small amounts on 6/C, 6/D and 6/G. Remains signifying 'basic cooking' (such as the cooking of stew or the reheating of foodstuffs) and the presence of children under the age of 7 are documented on all four plots. Food processing (such as making sausages, grinding or processing milk), textile production, 'other leather working' (involving the reuse of leather) and trade activities are well represented on plots 6/C–E, whereas they are absent or significantly underrepresented on plot 6/G.

Plot/unit	Crucible	Mould	Slag	Offcut fine metal	Weight/balance arm
6/C	(2)		(1)	(1)	(1)
6/D	1 (1)	(1)	1 1 (1)	(2)	
6/G	1		1		
8/B			(1)		
20/A				*(1)*	
26/A	3 (2)				(1)
26 27/B	(4)				
26–27/BC	(5)			(1)	
27/C	(1)	(2)			
28/B	(1)				
30/B				*(1)*	
30/E	*(2)*		*(1)*		

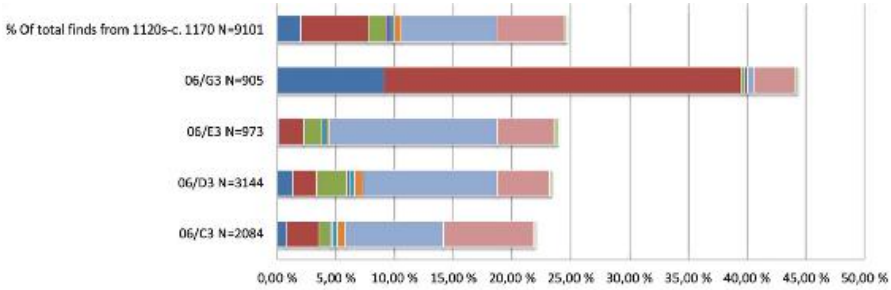
Numbers in: **bold** – well dated sources, in '*italic*' – less well dated material, in (brackets) = redeposited finds, without brackets – *in situ* finds.

*Figure 3.4: Bergen 1120s–*c. *1170, numbers of artefacts signifying metalworking (N = 42) (Reworked from Hansen 2005, Tab. 37).*

On plots 6/C–E shoemaking, comb-making, and metalworking are *some* of a large number of activities discernible in the material, and due to shortcomings in the archaeological documentation it is difficult to 'isolate' and study the individual activities in sufficient detail on these plots. Plot 6/G presents a different picture altogether; here several significant activities are apparently under-represented or lacking, and combmakers, shoemakers and metalworkers can in all likelihood be held responsible for *many* of the activity traces documented here. Nonetheless, not all activities can be accounted for in this way; some, such as the lime slaking evidenced by the presence of pits, must have been attended to by permanent residents. The church of St Peter's occupied the back part of plot 6/G and the neighbouring 6/H. Because of the close physical connection between the church and these plots, it is plausible that the clerics of St. Peter's had the rights of use of plots 6/G–H and that they were engaged in lime slaking as well as other daily activities here. Still, since our craftspeople seem to be responsible for *large parts* of activity traces in the town yard, I consider 6/G to be a relatively tight context, in which it is possible to get a closer look at the craftspeople in terms of age and gender.

Activity/	Find groups
Combmaking	Comb blank, comb offcut, tools, reindeer antler offcut
Shoemaking	Primary waste (shoemaking), last
'Other leather working'	Secondary waste (other leatherworking)
Metalworking – fine metal/casting	Crucible, mould, offcut fine metal, weight/balance arm
Metalworking – smithing/forging	Slag, scrap iron
Basic cooking	Steatite vessels, stone slaps, skewers
Women/food processing	Sausage pins, milk crosses, quern stones
Children under 7/child rearing (women)	Toys, shoes 175 mm (size 26–27) or shorter
Women/textile production and treatment	Spindle-whorl, drop-spindle, flax-beater, flax-comb, knife beater, linen-smoother, long-toothed comb, needle/pin, reed hook, shears, warping paddle, warp weight, winding pin
Trade	Tally stick, owner's mark, weight, balance
Storage of trading goods or food	Architectural details, tally stick, owner's mark, weight, balance, sausage pin

Figure 3.5: Finds signifying activities or demographic groups in the present study.



	06/C3 N=2084	06/D3 N=3144	06/E3 N=973	06/G3 N=905	% Of total finds from 1120s-c. 1170 N=9101
Combmaking	0,77 %	1,30 %	0,10 %	9,06 %	2,03 %
shoemaking	2,78 %	2,07 %	2,16 %	30,39 %	5,74 %
Other leatherworking	0,96 %	2,58 %	1,54 %	0,33 %	1,46 %
metalworking	0,14 %	0,19 %	0,00 %	0,22 %	0,37 %
Tools of trade	0,43 %	0,45 %	0,41 %	0,00 %	0,34 %
Textile tools and likely textile tools	0,72 %	0,73 %	0,21 %	0,00 %	0,59 %
Food processing	8,30 %	11,35 %	14,29 %	0,55 %	8,13 %
Basic cooking	7,72 %	4,49 %	4,83 %	3,53 %	5,80 %
Toys and infantia size shoes	0,14 %	0,19 %	0,41 %	0,22 %	0,21 %

Figure 3.6: Significant daily activities and groups of finds documented on plots 6/C–E and 6/G. Groups of finds as a percentage of the total number of finds from the plot and from the whole town area.

As it has been established that activity on plot 6/G was to a large extent carried out by artisans, we shall take a look at the general demographic composition of the users of this plot. This in turn may have implications for craftspeople there. To this end, plot 6/G's corpus of traditional female indicators is addressed, that is: textile tools, remains reflecting 'food processing', 'basic cooking', as well as objects reflecting 'child rearing'/the presence of small children (Hansen 2006, 307–310) (cf. Figure 3.6).

Remains reflecting food processing were, as has already been seen, underrepresented on plot 6/G. Unambiguous textile tools were lacking, whereas two child-size shoes, and tools for 'basic cooking' were among the finds. With methodological reservations concerning the representativity of the textile tools, that are not numerous when taken in sum, I would hold that textile production and food processing, two traditionally female activities, were probably not carried out in this town yard. But does this exclude the presence of women? Food processing is hardly an activity one would expect in a situation of impermanent residence (Hansen 2005, 218–220; Hansen 2006), so its under-representation does not constitute a weighty argument against there being a female presence among the travelling craftspeople. With regard to the lack of evidence for textile production, it is more difficult to be conclusive. Did women always have their spindle whorl, distaff etc. at hand? And if they did, would we not expect that in a travelling situation, they would take particular care not to lose or leave behind their (potentially very few) belongings when moving on, thus leaving no artefacts for the archaeologists to find?

Figure 3.7: Discarded blanks and combs of inferior quality. E5 blank: BRM 0/85597, tooth plate blanks: BRM 0/44816 and BRM 0/85546, E4 comb: BRM 0/85684 and E5-3b comb: BRM 0/104/2383. (Photo by G. Hansen).

Perhaps the remains of 'basic cooking' and child-size shoes can help settle the score here. As we have seen, 'basic cooking' is well represented on plot 6/G, and one might assume that this ought to indicate female presence. However, I do not find that the presence of basic cooking utensils necessarily equates to the presence of women; men also have to eat, and actually, contemporary sources mention men as cooks performing basic cooking while journeying (see for instance Gísladóttir 1985, 46–48). Two shoes, one 165 mm and one 170 mm long, corresponding to approximately continental sizes 25 and 26 must, however, have belonged to children, probably of about the age of seven, and thus within the *infantia* period of life in which medieval authors considered children to be dependent on adults for care (Hansen 2006). We cannot, however, exclude the possibility that these shoes were discarded by other users of plot 6/G. In all then, we can state that there were probably children about the age of 7 among the users of the plot (and thus probably old enough to participate in production at some level), but one cannot be sure whether or not these children belonged to travelling workshops, and the shoes cannot stand alone as evidence of child rearing and the presence of women among the travelling craftspeople. Neither can the shoes be used as evidence of younger children among the travellers exemplified by those using plot 6/G.

Turning to products and production waste, a survey of discarded comb-elements and blanks from the whole town area shows that only a few substantially complete elements have been retrieved. Most seem to have been rejected because they broke during production, and I suppose that breakage may happen to even master combmakers, so this is not the best indication of young untrained hands. However, one of the blanks – a connecting plate for an E5 type single-sided composite comb (after the typology outlined in Wiberg 1977) – displays no sign of breakage, but is rather misshapen (Figure 3.7, BRM 0/85597). The upper part of the piriform profiled connecting plate is asymmetrical, and too narrow for a 'successful' comb of this type. Furthermore, two discarded toothplate blanks (BRM 0/44816 and BRM 0/85546), one perforated with many drilled holes that may well stem from practising rivet-hole-drilling, and one with crudely sawn teeth, may perhaps evidence the work of apprentices. Among the finished products, an E4 and an E5-3b comb (BRM 0/85684 and BRM

104/2383), that may well have been made in Bergen (Hansen 2005), are both of poor quality: the rivets are inserted very unevenly, while the E4 comb in particular exhibits crudely sawn teeth (for criteria used in the assessment of quality, see Enoksen 2009). These pieces may represent further examples of the products of young hands, not yet fully trained.

The evidence of the demographic composition of the workshops is not strong, but is perhaps as good as we can hope for in the search for voiceless actors. In summary, it is difficult to be conclusive about the gender profile of the travelling workshops. However, if women did make up a part of these groups, exemplified by visitors of plot 6/G, then they were either engaged in non-traditional female activities (such as craft working?), or, for whatever reason, their presence and activities failed to leave gender specific material evidence. As for the presence of young people, there are indications that apprentices were included amongst the staff of the travelling combmaker's workshop. These workshops may thus have been characterised by a rather mixed age profile.

Aspects of the craftspeople's social status

We shall now address aspects of the social status of the craftspeople by looking at the relationship between townspeople and visiting artisans. As a point of departure, I assume that if craftspeople as a social group were treated with prejudice or skepticism by the permanent residents of Bergen, then they would have been kept away from the world of the townspeople, whereas trust and integration would be reflected in their co-location in the town. The question is, therefore, where did the itinerant artisans carry out their activities? Were they permitted in the town yards, or did they stay in specially ascribed areas of the town area? Were they offered special work booths in which to operate, or were they simply fitted in where space would allow?

The finds distribution in the town area is studied as a whole, before we zoom in to consider plots, buildings and individual culture layers. It might be assumed that a specialised workshop structure ought to be identifiable by virtue of the fact that it would have been designed for the particular activities intended to take place within. Furthermore, one would expect that *in situ* culture layers in buildings would provide evidence that may allow us to characterise such

buildings in terms of function. However, a problem with this approach is that in the sources for mid-12th century Bergen, the preservation conditions for (and the archaeological documentation of) buildings with *in situ* production waste is rarely such that culture layers and construction details provide information about the function of any building in which we are interested. Thus, the general distribution of finds (both on the macro-scale of the town area, and down at plot level), and the composition of craft-related assemblages assigned to buildings and to 'outdoor' culture layers will have to suffice.

The distribution of *in situ* and redeposited production waste from combmaking, shoemaking and metalworking (cf. Figure 3.1) shows that there were craftspeople both in the town yards along the Vågen and Veisan waterfronts, and in the built-up area at the foot of the Fløyfjellet hill (20/A). There are also traces of activity in the outskirts of the built-up area (30/B and 30/E). At the macro level then, it seems that neither combmakers, shoemakers nor metalworkers were confined to discrete areas of the town.

Zooming in to the plot-level at the Bryggen site, *in situ* combmaking, shoemaking and metalworking waste have been identified on five plots that have been excavated in close-to their full length (6/B–E and 6/G). The waste – which had probably not been transported far from the site of production – is found primarily midway between the waterfront and the innermost part of the town yards (Figure 3.8). Redeposited waste (that is not shown on the figure), was generally found closer to the waterfront, probably reflecting renovation or rearrangement of deposits on the plot. We do not have the data to sustain whether or not production also took place in the innermost parts of the town yards. Neither do we have sufficient data to evaluate the status of the inner, middle or outer parts of the properties along, for instance, a line of public/private thinking. As seen above, plot 6/G presents a special case in that the finds are dominated by material related to the itinerant craftspeople's production. The 'basic cooking' utensils show that people stayed on plot 6/G long enough to cook and eat on a daily basis. Thus, the plot did not serve solely as an 'industrial area' visited during daylight hours by people living elsewhere in Bergen, but was rather a place in which people also resided. The concentration of finds in the middle section of the five plots in Figure 3.8, and the absence of any evidence

for variation in the spatial distribution of the different categories of production waste, shows that the same general areas must have been used recurrently. As for plot 6/G, the church of St. Peter may have regularly let out part of the premises to itinerant craftspeople.

The town yards were, as already mentioned, composed of rows of buildings, and a passage that stretched from the waterfront to the inner parts of the property. This passage was the main artery for traffic vein on each plot, and one would have to cross the middle area of the town yard when going between the inner part and the waterfront. The middle parts of the town yards where our artisans were working must thus have been subject to constant traffic and activity at the hands of the yard's inhabitants. Furthermore, tools and waste from productive activities such as textile production and the already mentioned lime slaking, were also found in the middle areas of several of the plots. Given these activities' dependence on stable workshop premises and sedentary supervision, we may suggest that they were most likely carried out by townspeople. It thus seems likely that these central areas were used by 'productive' townspeople as well as itinerant artisans. Indeed, with the exception of the area in plot 6/G, which lacked secure 'female' indictors, townspeople of both sexes must have used these middle areas. This strengthens the impression that the visiting artisans were neither relegated to discrete areas of the town yards, nor segregated from the townspeople themselves.

Zooming in further still allows us to address the question of the existence of specialised work-booths. Only 12 of the 39 documented mid-12th century buildings yielded *in situ* finds, and only three of these contained relevant production waste. The first is building 158 on plot 8/B (Dreggsalmenning 14–16, BRM 237), located on a plot in the vicinity of the Veisan inlet, and destroyed in a fire (cf. Figure 3.1, plot 8/B). Slag and a concentration of iron fragments were found in the fire layer. The plot lies close to the spot from which the sagas' Sandbru (the 'sandy bridge') must have led, connecting the town area to the royal seat at Holmen. In connection with events in 1155 the *Morkinskinna*, *Fagrskinna* and *Heimskringla* sagas mention a place called 'the smiths' booths', located close to Sandbru (Helle 1982, 6); this makes it likely that specialised buildings for metalwork ('smithies') existed. Indeed, the location of building 8/B/158 corresponds well with the sagas' description of the location of the

'smiths' booths' (Hansen 2005, 166–167). Based on the composition of finds and the phrasing in the sagas it is, however, likely that building 8/B/158 in particular, and that the sagas' smiths' booths in general, were used by *permanently settled* blacksmiths, rather than by the itinerant metalworkers we encounter through excavation of crucibles, moulds and fine metal offcuts.

Building 40 on plot 6/C (cf. Figure 3.8) contained one piece of shoemaker's waste. Outside the building, refuse layers contained further quantities of such material, as well as a shoemaker's last, and I therefore consider it likely that shoemaking took place in this building. The building had a fire place (Moldung 2000, 30), and may have served as a residence for townspeople. The artefactual collection from the building shows that 'basic cooking', textile production and treatment took place here. In addition, the building served as a food store. In building 494 on plot 6/D, five pieces of combmaking debris were found, and more reindeer antler waste was located in the passage just outside this building. I consider this evidence sufficient to substantiate a hypothesis that combmaking took place in building 494. The building doubled as a food store, while 'basic cooking' also took place here. Together, traces of activity in these two buildings show that they were multifunctional, and they may constitute examples of itinerant artisans – both combmakers and shoemakers – being 'fitted in' where suitable, rather than in specialised workshop premises.

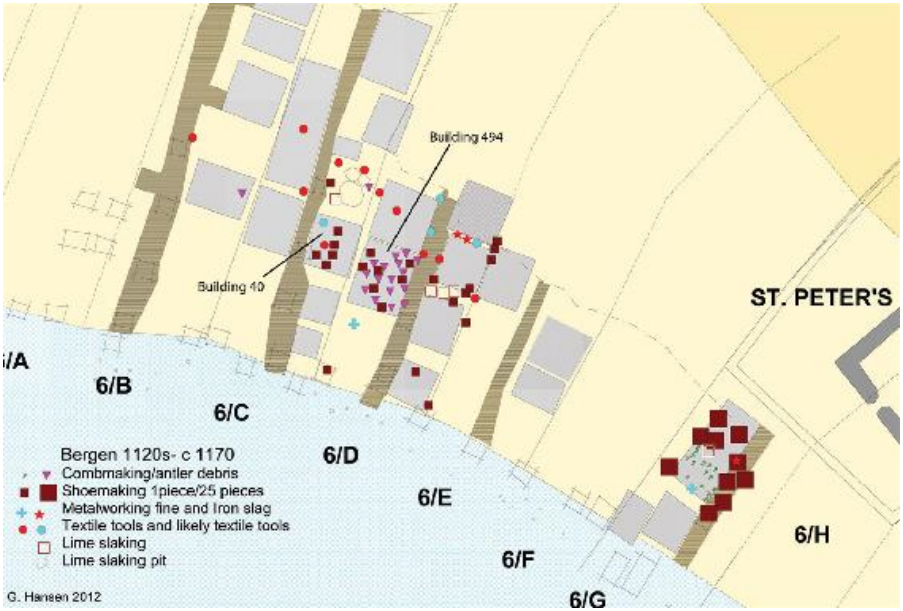


Figure 3.8: In situ *artifacts that signify production on plots 6/B–6/G, in the mid-12th century. The finds are shown in their approximate find location.*

Given that there is a degree of contemporaneity in the use of buildings for different purposes, the fact that itinerant craftspeople were given access to buildings in which people (probably townspeople) cooked, resided and stored their food, and where women spun and tended to textiles, strengthens the impression that these craftspeople were not segregated from other urban dwellers.

When looking at the sources from a slightly different perspective, the remaining buildings that yielded more than one artefact from finds-groups reflecting either (1) productive activities, (2) trade-related activities or (3) storage, and/or displayed structural features indicating their primary function, all seem to have been quite multifunctional. Indeed, with the exception of building 8/B/158 (the probable smithy), none served a single purpose to the exclusion of others (Figure 3.9). This suggests that buildings on the whole were not strictly specialised at this early stage of the town's history. It also strengthens the impression that no specialised work booths were available for the itinerant craftspeople, and that instead they were fitted in where possible, alongside the permanently settled townspeople.

There is still one more dataset that we should consider. Fine-metalworking debris was found in a basin located close to a creek that ran from the Fløyfjellet hill towards the Vågen bay (Vetrlidsalmenningen BRM 342) (Figure 3.1, unit 30/E). The finds are not *in situ*, but were carried by fluvial action into the basin, where water slowed down, heavy particles were deposited as sediment, and fresh water was available. This part of the town area was not yet densely built-up in the mid-12th century, such that sand-extraction pits and the basin are the only structures registered (Hansen 2005, 145–157). I find it unlikely that people walked up here from the town yards by the Vågen bay to dispose of their refuse, so the metalworking activities reflected in the finds were probably actually carried out here at the foot of the Fløyfjellet hill. Further downstream, fluvial layers revealed shoemaking debris, and offcuts from both combmaking and fine metalworking (Figure 3.1, unit 30/B). For this second deposit, it might equally be argued on logical grounds that it is unlikely that debris would have been taken from the densely built-up area to this spot, only to be dumped into the stream. It therefore seems probable that combmaking, shoemaking and fine-metalworking all took place in

the vicinity of the stream. The area in which the crafting activities may have taken place was not only close to the basin from where townspeople could fetch fresh water, but it was also close to a bridge that crossed the stream and gave access from one part of town (Bryggen) to another (Vågsbunnen), as well as in and out of town for visitors that came over land. Indeed, this may have been a place that experienced much traffic. Whether or not production literally took place out in the open cannot be substantiated, but given the wet weather conditions in Bergen, some kind of roof over the head must have been called for. Production in this area adds some nuance to the suggestion presented above of the craftspeoples' accommodation in Bergen. That is to say that some artisans apparently stayed outside of the town yards. However, even if this place lay outwith the built-up areas, it must have been optimal for contact with potential consumers, including all social groups, both of townspeople and visitors to the town.

Plot/building/ Number of relevant objects	Combmaking incl. reindeer antler offcut	Shoemaking	'Other leatherworking'	Textile tools and likely textile tools*	Fishing*	Weight: textile/fishing	Hone	Food and beverage processing/storage food	Basic cooking	Tools of trade	Storage, dry fish?¤	Smithing/slag	Dwelling functions?¤
6/C/40 N=44		X		X			X	X	X				X
6/B/41 N=4							X			X	X		
6/B/42 N=8				X		X		X	X				
6/C/43 N=0													X
6/B/46 N=3					X			X	X				
6/B/66 N=6						X	X		X		X		
6/G/203 N=3						X			X				
6/D/484 N=15						X	X	X	X	X			
6/D/485 N=5						X		X		X			
6/D/494 N=11	X							X	X				
8/B/158(N=?)												X	

Building numbers are according to site documentation (cf. Hansen 2005).
* – not weights and needles/pins for which the function cannot be determined
¤ = based upon constructional details of the building

Figure 3.9: Buildings with constructional details that reflect storage or that contain in situ *finds that reflect storage, trade or productive activities.*

To sum up, it seems that specialised work booths were not available for travelling artisans in mid-12th century Bergen. Some combmakers, shoemakers and metalworkers stayed in close proximity to townspeople (of both sexes) in multifunctional houses and areas in the town yards. Others settled in open places on the outskirts of the built-up area, but in an area that ensured close engagement with traffic routes and townspeople. Wherever they stayed, the artisans repeatedly stayed and worked in the same places. This may indicate that preferences regarding where to stay developed, leading to a certain familiarity between artisans and townspeople. Together, this all suggests that craftspeople were included in town life and thus treated as socially accepted groups of people.

Of course, one may argue that these conclusions rest upon unacceptably simple assumptions about the relationship between the spatial distribution of production waste and attitudes to craftspeople. Indeed, we actually know little in detail about the 'inner life' or socio-topographical organisation of a town yard in 12th century Bergen. Were some places more private than others, and reserved special members of the households? Were craftspeople really allowed entrance 'everywhere'? The Bergen material is unfortunately too crude to allow insight at such high resolution. Thus, my conclusion remains that, taken together, the Bergen material suggests that travelling combmakers, shoemakers and metalworkers were included in town life and thus, in the eyes of contemporary townspeople, constituted socially accepted groups of people.

Combmaking, shoemaking and non-ferrous metalworking – a joint venture?

We shall now turn to the occupational identity of the artisans under study. Were such craftspeople specialists with a mastery of just one group of raw materials, or were they 'Jacks of all trades'? Bergen's mid-12th century contexts preserve traces of combmaking, shoemaking and metalworking in various combinations. As we have seen, 15 plots/analytic units were found to present evidence of one of these three craft activities, and two or three of the crafts were found in 12 plots/analytic units (Figure 3.1).

A contextual approach in which the plots are taken as analytic

units is precluded by the large size of the plots as contexts; it is not possible to evaluate the degree of contemporaneity of activities witnessed in the different groups of production waste. As already pointed out there is also a lack of buildings with sufficient documented *in situ* craft-finds. However, at sites excavated since 1980, finds have been recorded in a single context system, with relatively detailed documentation of the history of deposition (cf. Golembnik 1995). In what follows, single context-layers for finds reflecting shoemaking, combmaking and metalworking will be surveyed, and we will also take a closer look at both production debris and finished objects.

Regarding the combination of combmaking and non-ferrous metalwork, the finished objects – combs – alone demonstrate that combmakers had developed a skillset that combined the smelting and working of copper alloys with the working of antler and other osseous materials. Medieval north Scandinavian combs are held together by rivets of copper alloy. The rivets may be solid (cast, cf. Ros, 1990) made of pulled wire or rolled sheets of metal (Hansen 2005, note 52 with references). In York copper-alloy-plated iron rivets have been found (Ashby 2013, 204). Sheets of copper alloy are also frequently used as decoration. The fact that combmaking involved the close combination of antlerworking and metalworking, and that this went beyond simply the use of rivets, is witnessed on plot 6/G, in the form of comb blanks whose morphology shows that they were intended to be decorated with inlaid metal sheets (Hansen 2005, fig. 40). Whether or not the crucible found on the same plot stems from combmaking activities cannot be ascertained. The other example that clearly shows the contemporary working of both antler and fine metal is comb-production waste comprising pieces of reindeer antler stained by drops of copper alloy (BRM 0/44816, BRM 0/45403).

As for the combination of ferrous and non-ferrous metalworking, three iron keys with inlaid copper-alloy threads demonstrate that some metalworkers were able to produce items that combined the skills of iron-smithing and fine metalworking (Hansen 2005, 193).

If we turn now to the stratigraphic association of evidence for craft production, only a few single context-layers display relevant combinations of finds: In a refuse layer on plot 26/B (Finnegården 6a BRM 104/layer 103), debris from combmaking was recorded together

with three crucibles and a piece of shoemaker's leatherwaste. Judging by the thickness and description of the culture layer's contents (BRM 104, field documentation Finnegården 6a), it is likely that the materials deposited in this layer relate to events and activities that took place within a short period of time: more likely a single season than several. And we may then suggest that reindeer antler, leather and metal were worked here contemporaneously. Whether one artisan/workshop was responsible for the three kinds of waste, or several specialised craftspeople/workshops were involved and just happened to be in the same place at about the same time can, however, not be established. Fluvial deposits in unit 30/B (BRM 342/ layer 221) also contained shoemaking and combmaking (reindeer antler) waste, as well as fine-metal offcuts. These finds were retrieved from a soil sample of small volume, which suggests that the finds were deposited literally in the same place. The degree of contemporaneity of the activities is of course difficult to assess, as the finds may have been carried some distance by the river before being deposited, but it seems safe to assume that we are dealing with a high degree of contemporaneity. While the contents of the two culture layers tell us that combmaking, shoemaking and metal working took place at about the same time, they cannot confirm whether or not the same hands or workshop were responsible for the different kinds of raw material debris.

Taken together, the mid-12th century material from Bergen demonstrates that some metalworkers mastered both iron-smithing and fine-metal working, and that combmakers worked in fine metal as well as in osseous materials. In a sense these craftspeople were thus 'Jacks of several trades'. Whether leatherworking was part of the repertoire of metalworkers or antlerworkers or vice versa, cannot be established with any certainty. It is interesting to consider whether the 'combmaking metalworkers' were also responsible for other products, such as accessories in fine metal. Unfortunately the sources for metalworking in mid-12th century Bergen are too sparse to allow detailed consideration of the repertoire of these metalworking craftspeople. We can, however, say one thing at least: some of these metalworkers were also antlerworkers, and made combs.

Did the itinerant craftspeople have close social

ties to the consumers of crafts?

It is now time to consider the nature of the social ties that bound craftspeople and consumers together. As we have already seen, itinerant craftspeople were most likely accommodated in multifunctional houses, rather than in dedicated work booths. This implies that these artisans were dependent upon rather *ad hoc* solutions to accommodation, and may suggest that their visits were not organised by townspeople. Rather, craftspeople themselves decided where to visit and when to do so.

In my previous study of crafts in early Bergen, I argued that combs and shoes found in mid-12th century contexts were produced professionally and that the craftspeople under study here should probably be seen behind many of the products found in Bergen (Hansen 2005, 157–204). Judged according to criteria such as the costs and quantities of raw materials used, and the skills required in production, there is significant variation in the 'value' of combs and shoes encountered in mid-12th century Bergen. That is to say that craftspeople produced both combs and shoes in expensive as well as more affordable versions (Hansen 2015). None of the products encountered in the town area, be they combs, shoes, or metal accessories can, however, be characterised as 'exclusive', whether in raw material use or in morphological or decorative 'uniqueness'. Indeed, even the most elaborate objects have parallels in contemporary places in Norway and beyond, and are thus not 'one of a kind'. We are as already stated, dealing with *affordable* crafts, accessories for high and low among the ordinary townspeople and visitors of the town. Furthermore, the distribution of twin objects (cf. introduction), shows that both shoemakers and combmakers sold products to people from multiple households/plots. For example, embroidered shoes made by the same workshop/artisan have been found in different town yards in Bergen (Hansen 2005, 157–204, fig. 48). Together, this suggests that craftspeople produced their goods for townspeople of all socioeconomic classes, and they produced for an anonymous market rather than for a single lord. Of course, the archaeological sources do not allow us to ascertain whether *all* consumers from *all* socioeconomic classes purchased affordable crafts directly from the craftspeople. A model in which the head of a household bought shoes for their extended household (including both

family and miscellaneous staff) would equally find resonance in the sources. Such distinctions are, however, less important for the characterisation of the producers' ties to the consumers of crafts. What remains clear is the fact that craftspeople sold goods to people from different households. This does not relate well to any model that assumes strong social ties between artisans and consumers.

In Bergen, the combmakers', shoemakers' and (some) metalworkers' production was small, and therefore must have served a primarily intra-urban market, as opposed to a wide regional, or even national or international market. Bergen was thus not a site of mass production, and probably not a place from which substantial loads of crafted objects were shipped out for export and large-scale distribution (Hansen 2005, 180–193, 203). Nonetheless, it is likely that visitors to the town (such as domestic or foreign merchants) could purchase accessories. Such a system would explain the observation that a number of objects found in Bergen (including combs, shoes and metal accessories) have close parallels in many places, spanning at least Norway, parts of Sweden, Denmark, Greenland, eastern England (York), Russia (Novgorod) (Hansen 2005, figs 43–45, 49, 51 with references) and Lithuania (cf. Griciuviené 2009 Cat. 1291). Let it be clear, however, that I do not believe that the same travelling workshops made all the combs, shoes or metal accessories that parallel each other across this wide area, or, for the matter, that all were made in Bergen. But consumers must have been able to purchase these affordable objects either through contact with a visiting artisan at their places of residence, or through themselves visiting a place at which artisans were producing and selling their products (such as Bergen). Thus, objects travelled in the pockets of their owners, as well as in the hands of the craftspeople. It is hard to imagine that this relationship between artisans and consumers from high and low levels of society, and across such large geographical areas, would have been characterised by close producer-consumer ties.

Altogether it seems clear that travelling craftspeople arrived in town when they wanted, produced accessories for high and low, and for people from different households. This finds resonance in a picture of free, small-scale producers.

Aspects of the identities of itinerant combmakers,

shoemakers and metalworkers in 12th century Bergen

To conclude, this case study has made it clear that through a multilevel and a methodologically diverse approach to the archaeological sources, it is possible to add some empirically sustained insight into the social identities of itinerant craftspeople. The case study has shown that the travelling workshops, at least for the combmakers, may have included people of a range of ages, since there are indications that apprentices were among the artisans. If women, however, were on the road as members of these workshops, then they did not perform traditional female activities, or at least they failed to leave identifiable traces of their presence for archaeologists to find.

As for the occupational identity of our artisans, the study shows that some metalworkers mastered both ironworking and fine metalworking in their production of accessories. Furthermore the combmakers were also metalworkers, but it cannot be substantiated whether they made fine-metal products as such, or if they were primarily antlerworkers with a certain mastery of copper-alloy. Such skills may have been limited, but were certainly sufficient for the purpose of making rivets and comb décor. It cannot be determined if shoemaking was part of the repertoire of these combmaking metalworkers (or *vice versa*).

While some itinerant combmakers, shoemakers and metalworkers practised their crafts in open areas in the outskirts of the densely built up area, this was at a point characterised by heavy traffic, thus maximising contacts with consumers of all social classes. Other combmakers, shoemakers and metalworkers were accommodated among the townspeople in the town yards, in areas and multifunctional buildings that were not only subject to the movements of the town plot's inhabitants, but were also used by both male and female members of the population for production. As a social group, itinerant craftspeople seem to have been included in town-life and thus treated with some measure of trust as socially accepted groups of people.

As for the relationship between artisans and consumers, it is argued here that travelling craftspeople arrived in town when they wanted to, produced affordable accessories for consumers of high and

low statuses alike, and for people from different households. This all fits most parsimoniously in a model of free producers, who in all likelihood had no strong social ties to the consumers of their crafts.

Through multi-level contextual and qualitative analyses of the sources from mid-12th century Bergen, it has thus been possible to throw some empirically based light on aspects of the social identities of itinerant combmaking, shoemaking and metalworking craftspeople that worked in Bergen during the mid-12th century. Ultimately, of course, these questions must be discussed in a much broader context, but the implications of the patterning seen in this case study of Bergen's mid-12th century material certainly lend some insight in themselves, and call for more research. Some obvious issues and thoughts come to mind; since our craftspeople were in Bergen on a non-permanent basis, they must have come from somewhere, and went on to somewhere. Throughout the mid-12th century, Bergen was probably not large enough for combmakers, shoemakers and (all kinds of) metalworkers to settle down and make a living all year round. Did they have a permanent place of residence somewhere in one of the larger Norwegian or Scandinavian towns, or in the countryside? Or was itinerancy a year-round lifestyle? How far did they travel? These questions must be pursued on a broader canvas. Thus, the spatial and temporal dimensions of itinerancy must be considered, together with consideration of the 'life cycle' of objects, including geographical and temporal (seasonal) dimensions: from the procurement of raw materials, through to the fabrication, distribution and consumption of the objects. Such an analysis will allow us to consider where, and when, in Scandinavia and beyond we encounter an itinerant lifestyle. As for the crafts treated here, we may then ask if there was, as would seem a good qualified guess, a relationship between itinerancy and the size of markets? And for how long, then, was this lifestyle relevant?

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Abbreviations: BRM is a reference to accession number and original field documentation from archaeological investigations, kept in the University Museum of Bergen's archives.

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Chapter 4

Urban craftspeople at Viking-age Kaupang

Unn Pedersen

Large amounts of waste from non-ferrous metalworking were found at Kaupang in Norway between 1998 and 2003. The purpose of this article is to demonstrate that quantitative, qualitative and spatial analyses of the material supply new knowledge on the context of the craft activities and the use of raw materials, tools and techniques. As a consequence, they provide a better understanding of urban craftspeople in the early Viking Age, their skills, social roles and networks. I will argue that the non-ferrous metalworkers at Kaupang were well integrated in town life. They were highly skilled craftspeople with a broad knowledge base which they applied to a wide range of metals and alloys. They were well-connected, had access to high quality raw materials from near and far, and delivered products to several different social groups.

New finds from Kaupang

A combination of excavations and metal detecting campaigns at Kaupang resulted in a heterogeneous workshop assemblage with more than 2000 fragments of crucibles, 5.6 kg of clay moulds, 6 kg of metal spillage and a wide range of other tools and waste products (Figure 4.1). The material has been investigated in detail (Pedersen 2010; 2015a), supported by characterisation studies of clay (Vince 2011) and archaeometallurgical analyses (Jouttijärvi 2005; 2006 a–e; 2007,

discussed and summarized in Pedersen 2010).

The study provides a picture of non-ferrous metalworking in Viking-age Norway; the first to be generated from the analysis of a workshop assemblage. Excavations at Kaupang from 1956 to 1974 yielded similar finds, mentioned in general presentations, but not published in detail (Blindheim 1969; 1971; Blindheim *et al*. 1999; Resi 2000; Pedersen 2000; 2001). Elsewhere in Norway, workshop material has only been sporadically recorded (Bakka 1965, 142–143; Stylegar and Nordseng 2003, 371) until recently (Bill and Rødsrud 2013; Pedersen and Rødsrud 2013). Finished products from graves and hoards have accordingly been the essential source for the discussion of non-ferrous metalworking, along with graves containing relevant tools (Grieg 1922; Petersen 1951; Straume 1986; Fuglesang 1987; Maixner 2005).

Figure 4.1: Non-ferrous metalworking tools from Kaupang: crucibles, a mould of soapstone, ingots of brass and lead and spillage of lead. (Photo by E. Irgens Johnsen © Museum of Cultural History, University of Oslo).

The material from Kaupang contributes to ongoing discussions on urban craft activities. From the 1980s onwards, publications on material from Ribe, Birka, Hedeby, Åhus and York have renewed our understanding of Viking-age non-ferrous metalworking (Brinch Madsen 1984; Bayley 1992; Jakobsson 1996; Ambrosiani 1997; Callmer 2002; Feveile 2002; Armbruster 2004; Söderberg 2004; Feveile and Jensen 2006; Sindbæk 2007).

Kaupang in Skiringssal

Kaupang in Skiringssal is located by the outlet of the Oslo fjord in present day Norway. The excavations and surveys between 1998 and 2003 demonstrate that Kaupang could be regarded as a Viking-age town, like Birka, Ribe, Hedeby and others (Skre 2007; 2008a; 2011). Kaupang was established *c*. AD 800 when a large area by the shore was divided into plots (Pilø 2007a). Initially the site was characterized by seasonal activities, but people settled after a few years and Kaupang became a town (Pedersen and Pilø 2007). Most settlement remains younger than *c*. AD 840/850 have been destroyed by later ploughing, but the large artefact assemblage, from a modern and a late medieval plough layer, allows for studies of the later phases. It suggests that Kaupang was a town until *c*. AD 930, and that some trading activity took place even in the second half of the 10th century (Pilø 2007b, 202–203; Skre 2008b, 199–202). Surrounding cemeteries suggest that Kaupang had, on average, a minimum of 200 inhabitants (Stylegar 2007). Judging from the artefact material the town was characterized by long distance trade, craft activities and daily life (Pedersen and Pilø 2007; Skre 2007; 2008a; 2011; Wiker in prep.).

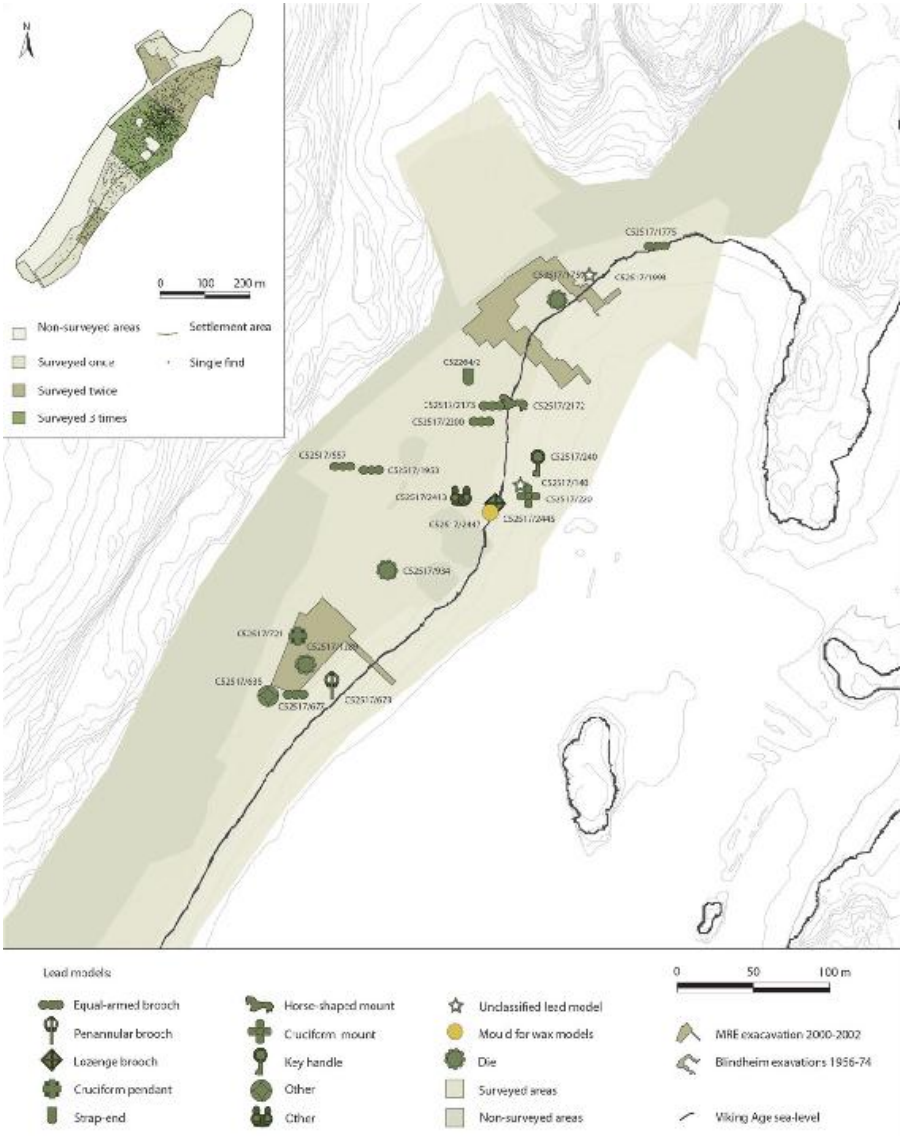

Figure 4.2: The distribution of models, dies and a mould for a wax model from the metal detecting surveys. (Map by U. Pedersen and E. Naumann, University of Oslo).

Integrated in town life

The workshop assemblage demonstrates that the first non-ferrous metalworkers arrived shortly after Kaupang was established (Pedersen 2010, 175, 284). Where they arrived from remains an open question, and a topic for future research. The material from this first phase is limited and from outdoor workshops, suggesting shorter visits, and well in accordance with the seasonal character of the site. The technology they brought with them is the same as in the later phases, and the waste material is characterized by lead models and crucibles made of heat-resistant clay.

The large amounts of waste from the phases with permanent settlement suggest that non-ferrous metalworking was among the activities characterizing the Viking-age town from *c*. AD 805/810 onwards. The workshop assemblage was collected from a wide range of contexts, including the two later plough layers. The intact deposits comprise house structures, pits, plot-division ditches and a larger dumping area towards the shore (Pedersen 2010, 285–296). The material provides an overall picture of the non-ferrous metalworking at Kaupang and the opportunity to examine the activities of particular groups of non-ferrous metalworkers. It demonstrates that nonferrous metalworking was carried out throughout the 9th century, and possibly into the 10th (Pedersen 2010, 91–92). The activities took place within the town area along with trade, daily life and other craft activities, thus the non-ferrous metalworkers were accordingly well integrated in town life.

Non-ferrous metalworking took place in several different parts of the town, as demonstrated by the distribution maps resulting from the metal detecting campaigns (Figure 4.2). Datable tools suggest that the activity in different areas was contemporary (Pedersen 2010, 93), thus there was no metalworking district. The excavations demonstrate that non-ferrous metalworking took place at several different plots within a limited area and that non-ferrous metalworkers operated in different types of contexts (Pedersen 2010, 285–293). A partly excavated clay floor on plot 1B, covered by a charcoal layer with moulds, crucibles and spillage, has been interpreted as a workshop building (Pilø *et al.* 2000, 81). Another concentration of workshop waste is found within a multi-functional building on plot 3A, suggesting that the craftspeople

also carried out their crafts in a dwelling house (Pedersen 2010, 292–293). The amount of waste suggests that the casting took place as (a) short event(s), and in this case the craftspeople might have been guests in the house.

Mastering a wide range of metals

Bronze casting has been a key concept in earlier research (Brinch Madsen 1984; Hedegaard 1992; Ambrosiani and Erikson 1992; Jakobsson 1996), but the craftspeople at Kaupang are best described as non-ferrous metalworkers. Metal waste and raw material demonstrates that they had access to a wide range of metals: gold, silver, copper alloys and lead (Pedersen 2010, Tabs. 4.26–4.27). Archaeometallurgical analyses reveal that they worked with a wide range of alloys, including brass, bronze, leaded brass, leaded bronze, gunmetal and alloys of gold and silver and silver and tin (Jouttijärvi 2006a; Pedersen 2010,180–191, Tab. 4.3). Several different metals and alloys are detected in each mould of soapstone or other types of rocks, suggesting that the individual non-ferrous metalworker mastered them all. This is further supported by the fact that a wide range of metals and alloys characterize individual workshops and collections of workshop waste.

The workshop building on plot 1B has left no trace of iron working, suggesting that ferrous and non-ferrous metalworking were carried out by different groups (Pedersen 2010, 288–292). This is well in line with observations from Ribe, Birka and York (Brinch Madsen 1984, 95; Bayley 1992; Jakobsson 1996).

Information from the heterogeneous workshop assemblage provides a picture of craftspeople with a comprehensive tool chest, mastering a wide range of techniques. Metal casting was merely one of them, but the most conspicuous, as it leaves a lot of waste behind. Fragments from heating trays demonstrate that cleaning of silver and gold was another technique used by Kaupang's non-ferrous metalworkers (Pedersen 2010, 194–203). This type of metallurgical ceramic was used to separate precious metals and base metals (Bayley 1992, 748–751; Söderberg 2004). Silver has been detected in some trays from Kaupang, and gold in others (Jouttijärvi 2007; Pedersen 2010, 197–199). One of the trays used to clean silver was found in the workshop building, otherwise characterized by metal casting debris,

demonstrating that the craftspeople there mastered different techniques. A lead model provides another example: This type of tool was used in metal casting, for the production of clay moulds (Capelle and Vierck 1971; Lønborg 1994, 1998). But this particular model was employed to cast tools used for another technique i.e. dies for the production of pendants of sheet metal (Armbruster 2004; Pedersen 2010, 69–71). This model further illustrates that some of the production sequences were long and complex, as pendants of this type were finally decorated with filigree (Hårdh 1976, cat. 85:82, Taf. 39:82).

A broad knowledge base

The heterogeneous workshop assemblage from Kaupang demonstrates that the nonferrous metalworkers had a broad knowledge base. Metal casting was a complex process involving a wide range of materials, as illustrated by the different metals and alloys. This is also evident from the many different tools involved: lead models for the production of moulds of clay, a lead mould for the casting of wax models, moulds made of specially selected local clay, moulds of soapstone and other types of rocks and crucibles made of imported clay mixed with pulverized old crucibles used as chamotte (Pedersen 2010). A wide range of tools of iron and wood must also have been applied at different stages of the production processes (Grieg 1922; Petersen 1951, 104; Capelle and Vierck 1971, 56; Hedegaard 2005). Few such tools are identified in the workshop assemblage. Very little organic material is preserved at Kaupang and among the poorly preserved iron objects only one possible file and three possible chisels have been identified (Pedersen 2010, 303). Some crucibles bear imprints of a specialised tool, a crucible-stick, most likely made of wood (Pedersen 2010, 165). Thus the tool chest included a type of tool known from a slightly later written source, the monk Theophilus' work on metalworking from the first half of the 12th century (*De diversis artibus, III:65*). Some of the lead models were also produced with the help of another model, and in one case this must have been made of leather, wood or bone (Pedersen 2010, 54). Thus it is obvious that the non-ferrous metalworkers not merely worked metals, they also touched upon other technologies like pottery production, leather, bone- and/or woodworking.

The Kaupang material demonstrates that some stages in the casting process could be carried out in several slightly different ways (Pedersen 2010, fig. 4.31). This is best illustrated by the different types of models, directly and indirectly identified, of lead, wood/bone/leather and wax. This might suggest that different groups of non-ferrous metalworkers used slightly different methods, but the tools themselves point towards a more likely interpretation: that slightly different methods were used by the same group in order to achieve the best possible result. Lead models and wax models have different properties, but as wax models were used to produce some of the lead models it is quite clear that both types of tools were utilised within a group of metalworkers. Lead models and moulds for wax models are both tools involved in the serial production of clay moulds for casting, but the use of the mould for wax models results in more homogenous products and allows large scale production within a more limited timeframe (Pedersen 2010, 299). Thus it seems likely that the non-ferrous metalworkers were able to choose between several different techniques in any given situation.

Both the lead models and the mould for wax models are suitable for reuse, even after a considerable period of time (Pedersen 2010, 109). Thus the non-ferrous metalworkers seem to have known, or assumed, that they would need to make a larger number of products of these specific types, at regular or irregular intervals. Accordingly the non-ferrous metalworkers seem to have been planning for the future, and had been doing so from the seasonal activity phase onwards.

Masters and apprentices

There is no doubt that the non-ferrous metalworkers at Kaupang were highly skilled craftspeople. The high skill levels must have been the result of a long period of training, with the workers most likely starting out as apprentices. It is difficult to trace the learning processes in the archaeological material, but non-ferrous metalworking was organised in a way well-suited for apprenticeship, as knowledge and skills could be built over time. Non-ferrous metalworking is unquestionably group-work (Hedegaard 1992), with the possible exception of work in lead and tin. The melting of gold, silver and copper alloys demands high temperature, and thus an extra person to

operate the bellows. This task is quickly learned, and the seat next to the bellows provides an ideal position from which to observe the master in action.

Based on experience from reconstructions it has been suggested that a group of nonferrous metalworkers has two to three members (Hedegaard 1992, 84). The different members of the groups were most likely responsible for different tasks (Hedegaard 1992, 84). Some of the tasks require long experience and detailed knowledge while others are fairly easy (Hedegaard 1992; 2005). Kneading clay, collecting the animal dung used in moulds, and grinding down old crucibles into chamotte are all tasks a beginner could manage. Conversely, in order to produce moulds with the use of an available lead model, to make a crucible with the help of a crucible-stick, and to melt the metal itself some training and experience is demanded, while specialised skills and knowledge are needed in order to create new models of wax or lead, to mix the perfect clay, or to judge the properties of different metals and alloys.

Several different groups

Some minor differences among the tools seem to point towards individuals or groups having had slightly different training. A total of eight crucibles are complete, or almost complete. They, and some distinct fragments, demonstrate that several different types of crucibles were in use at Kaupang (Pedersen 2010, 164–180). Most of the types have the same technical properties and the variety could not be explained by different functions. Rather the differences seem to point towards different hands, and it seems likely that the different types of crucibles were made by different (groups of) non-ferrous metal workers. Some types are found within limited areas. A type with a handle (Brinch Madsen 1984, fig. 3), characterizes the workshop floor at plot 1B, while a type with a grip (Brinch Madsen 1984, fig. 2) is found in and around a pit on plot 3B (Pedersen 2010, 178). Some of the types are contemporary and some of the individuals or groups must have been operating at Kaupang at the same time. The differences may, accordingly, also have been used actively to express identity or group identity.

The heating trays serve as another example, as several different types could be identified: disc-shaped trays, rectangular trays and a

pottery shard reused as a heating tray (Pedersen 2010, 195). They all serve the same purpose technically speaking, but the non-ferrous metalworkers might have been making them in the unique way they were taught. Ethnographic studies demonstrate that potters have a wide range of raw materials to choose between, but that they use the raw material they were taught to use as apprentices (Gosselain 1998). It seems likely that the same could be the case for how they shaped their tools, and slightly different training could explain the observed variation.

The tools and waste suggest that each group of non-ferrous metalworkers mastered the skills necessary to work a wide range of metals and alloys. Accordingly they were not specialists like goldsmiths or silversmiths, but there seems to be a preference for one single metal in some of the workshops. Detected metals in the crucibles suggest that silver was most frequently melted in the workshop building on plot 1B, while copper alloys dominate the waste material from the dwelling house at plot 3A (Pedersen 2010, 184–185).

Relating to many social groups

Oval brooches have often been in focus in studies of urban non-ferrous metalworking (Brinch Madsen 1984; Feveile 1994, 2002; Feveile and Jensen 2006), but the non-ferrous metalworkers at Kaupang mastered a wide range of products: different types of decorative mounts, dress accessories and tools. A unique collection of lead models provides direct information on the types of products cast at Kaupang: equal-armed, penannular and lozenge brooches, strap-ends, mounts, arm rings, key handles, miniature axes and dies (Pedersen 2010, fig. 4.28). A small collection of clay moulds with preserved imprints allows us to add oval and trefoil brooches to the list, and moulds carved out of stone testify to the production of pendants, ingots and weights (Pedersen 2010, Tab. 4.7, figs 4.35–4.36). Production may have been even more varied as clay moulds are poorly preserved, while some forms of non-ferrous metalworking leave few traces behind. To mention one example, the use of unique wax models combined with one-piece clay moulds would be almost impossible to identify.

Products include mass produced pendants of lead, several types of copper-alloy brooch intended for men and women, copper-alloy

mounts for horse harnesses and belts, and pendants of silver or gold. The finished products, of widely different value, suggest that the non-ferrous metalworkers delivered products to several different social groups, including the uppermost strata of society, townspeople and visitors from far and near (Pedersen 2015b).

The lead models, the mould for wax models and the mould for pendants all point to the production of large series of similar objects. Accordingly, serial production is a key characteristic of non-ferrous metalworking at Kaupang, as it is for Viking-age urban craft in general (Brinch Madsen 1984, 93; Callmer 1984; 1995). This serial production has been interpreted as (1) having been directed towards consumers with whom craftspeople had little or no contact (Callmer 1995, 66), and (2) being synonymous with production for an anonymous market (Skre 2007, 450). In line with earlier research it seems highly relevant to regard the production of objects like oval and equal armed brooches as directed towards a market (Brinch Madsen 1984; Callmer 1984; 1995). This is further strengthened by a better understanding of the production sequences. The use of lead models could be described as 'slow' and time-consuming serial production, suggesting that the metalworkers pre-produced a stock of brooches, or alternatively moulds (Pedersen 2010, 299; Pedersen 2015b). Weights and hacksilver reflect the significance of trade activities at Kaupang, and suggest that even less affordable goods were bought and sold (Hårdh 2008; Pedersen 2008).

Other lead models suggest that serial production was more complex than hitherto recognized (Pedersen 2015b). Some of the serially produced objects formed sets, such as a necklace with several pendants of gold or silver (Paulsen 1936), or a horse harness decorated with a larger number of almost identical mounts (Brøgger 1916, figs 1, 14). In these cases it seems less likely that the non-ferrous metalworkers initiated a large and rather expensive production with the hope of finding a consumer later on. These sets were more likely produced on demand. Thus serial production is better described as a method used by the non-ferrous metalworker to produce many objects, regardless of how they were exchanged.

Access to high-quality raw materials

The majority of the analysed crucibles from Kaupang are made of

kaolin clay (Vince 2011), demonstrating that the non-ferrous metalworkers had access to raw materials brought from some distance, as this clay does not occur naturally in the Oslo fjord area. It has not been possible to trace the origin of the kaolin clay used at Kaupang, and it may originate from several different areas including Åhus in Scania (Callmer 2002, 127), Bornholm, England, Germany and France. Kaolin clay can be classified as a high-quality and desirable raw material, as its heat-resistant nature prevented crucibles from being destroyed when melting metal. It must have been essential for the non-ferrous metalworkers to avoid failure as the pouring of melted metal from the crucible into the mould was one of the last stages in a long production sequence (Pedersen 2010, fig. 4.31). The production of clay moulds was time-consuming and they could only be used once. If they were not filled, the casting would fail, the mould would be destroyed and a lot of time and resources had been totally wasted. The kaolin clay would also prevent the metal from being lost in the furnace. This was of particular importance for the valuable metals gold and silver. The metals were clearly handled with great care, as demonstrated by the very limited quantities of waste material of these two precious metals, in comparison with traces detected in crucibles and moulds (Pedersen 2010, fig. 5.1; 2013, fig. 3).

Lead was more carelessly handled and the non-ferrous metalworkers left huge amounts behind; a remarkable example consists of 100 ingots, including 86 fragments, with a total weight of 6 kg (Pedersen 2010, 226–227). Thus it seems highly likely that lead was easily available for the non-ferrous metalworkers and was rather inexpensive. Archaeometallurgical analyses of ingots and sprues of copper alloys have demonstrated that the non-ferrous metalworkers at Kaupang used high quality brass when casting and that they had access to several different alloys of brass (Jouttijärvi 2006c; Pedersen 2010, 233–236; 2013, fig. 1). Accordingly they had access to some of the best copper alloys available in their time. Brass was available at Kaupang from the first half of the 9th century, at the time when this alloy was reintroduced to Europe following a long period characterised by the re-melting of scrap metal (Jouttijärvi 2002).

The metalworkers' conscious use of raw material is also reflected by the clay moulds. They are made of local clay collected from a distinct layer within Kaupang's naturally occurring geology (Pedersen

2010, 162; Vince 2011). The reason for choosing this type of clay is not clear, but it may have had properties that the non-ferrous metalworkers found attractive. Future experimental studies should explore whether this clay has any properties especially suited for casting. If not it is still possible that the metalworkers thought it had such properties. Nevertheless, it is clear that they made an effort to collect this specific type of clay, suggesting that they were not passive receivers of available raw material, but were actively acquiring the best. This accords well with the heating trays discussed above, demonstrating that the metalworkers improved the quality of available raw materials.

Well-connected actors

Brass was not produced in Viking-age Scandinavia, and the brass ingots must have been brought from some distance. Some of those found at Kaupang have a remarkably high zinc content, and must have been transported from their area of production without being re-melted on their way, as zinc easily evaporates when melted (Bayley 1992, 818; Dungworth 2000, 84). They might have been acquired by trade, as a collection of 25 brass ingots from the harbour in Hedeby suggests that brass ingots were trade goods brought in large quantities to the towns (Roesdahl 1992, 98). The origin of the brass at Kaupang has not been established, but the Frankish area is one possibility (Pedersen 2010, 236). This is an area from which other types of trade goods at Kaupang arrived, foremost vessel glass and pottery (Gaut 2011; Pilø 2011).

The lead ingots could be divided into several different types based on their shape, and they most likely originated from different areas (Pedersen 2010, figs 4.85–4.86, 284). The extensive use of lead is one of the characteristics of the Kaupang material as compared to Birka and Ribe (Pedersen 2010, 232, 246–247). Lead easily makes up the largest group among the ingots and waste from Kaupang, while the majority of these items in the two other towns are of copper alloy (Ambrosiani 1997, 167; Feveile and Jensen 2006, 143–145). The striking differences might suggest that the non-ferrous metalworkers at Kaupang represented a slightly different craft tradition. Archaeometallurgical analyses of the lead might support such an interpretation. The non-ferrous metalworkers at Kaupang used almost

pure lead (Pedersen 2010, 308) while a few analysed weights from Birka are made of an alloy of lead and tin (Sperber 2004, 71). At first the large collection of lead models seem to point in the same direction, as lead models are absent in Birka and found in low numbers in Ribe (Feveile and Jensen 2006, 144). However, the large collection at Kaupang is a result of large scale metal detecting, and the lead models at Ribe and Kaupang actually have much in common. Furthermore, metal models were also used by the non-ferrous metalworkers in Birka, the only difference being the use of raw material, as the identified model is made of copper alloy (Ambrosiani and Erikson 1997, 29). Accordingly the difference might reflect different access to raw materials rather than different craft traditions. Kaupang may have been visited by other traders or the non-ferrous metalworkers' contact network may have differed.

The kaolin clay was a specialized raw material used by no other groups at Kaupang, with the possible exception of the glass bead makers. This might reflect the relationship between non-ferrous metalworkers and traders. It might suggest that the artisans were able to order raw materials directly from traders, or that some traders brought this special type of clay to Kaupang as they knew they would meet non-ferrous metalworkers there. The latter appears likely as the material from the intact deposits suggests that casting was carried out on a regular basis. An alternative interpretation is that the non-ferrous metalworkers supplied themselves with raw material, and that they were travelling over considerable distances. Kaolin clay was used from the seasonal phase onwards (Pedersen 2010, 191–193), and in the early phase it seems most likely that the non-ferrous metalworkers brought the clay with them when they arrived.

The soapstone moulds also suggest that the non-ferrous metalworkers supplied themselves with raw materials. Soapstone had to be brought to the site, from inland districts, the other side of the Oslo fjord, or more distant areas. Some of the soapstone moulds, perhaps most of them, are from re-used soapstone vessels, suggesting that the non-ferrous metalworkers re-used the broken vessels that would have been easily available at Kaupang. However, provenance studies suggest otherwise, demonstrating that the soapstone used in the moulds and that in the vessels came from different quarries (Jones *et al.* 2006; Baug 2011, 329–331). The moulds are all from disturbed

contexts, and could theoretically belong to different phases to those in which the vessels were found, but this seems unlikely, as one of the moulds' origins is from the same quarry as another soapstone tool used by the metalworkers: a tuyère. This tool, used to protect the bellows, certainly belongs to the same phase as the analysed vessels. The re-use of broken vessels indicates that the non-ferrous metalworkers brought the soapstone from somewhere else, as it seems less likely that broken vessels were trade goods. All in all, it seems reasonable to conclude that their access to high quality raw materials was a result of a complex situation: some raw materials were provided by the non-ferrous metalworkers themselves, while others were brought to Kaupang through trade. Accordingly, the metalworkers appear as well-connected actors in a larger network of traders and craftspeople.

Itinerant or permanently settled?

Whether Viking-age metalworkers were itinerant or permanently settled has been a recurrent question in earlier research (Petersen 1951; Berg 1956; Christophersen 1980, 1982; Brinch Madsen 1984; Straume 1986; Arwidsson and Berg 1999). The Kaupang material does not provide a straightforward answer, but the discussion above points towards a certain degree of mobility: especially in the early phase of seasonal activities when non-ferrous metalworking seems to have been carried out during shorter visits. A mould for pendants is an indication of mobility in the phase during which Kaupang first became permanently settled. The mould is made of volcanic tuff of a type not present in Scandinavia (Pedersen 2010, 117–119). With the exception of a die for the production of small decorative nails of silver or gold (Pedersen 2010, fig. 33a) there is no other find of this raw material at Kaupang or elsewhere in Norway, to my knowledge. The two tools were most likely used by the same person(s), as the mould is found on plot 1A, and the die in the modern plough layer in the same area (Pedersen 2010, figs 4.26, 4.38). Thus it seems unlikely that this specific raw material, or the tools, arrived as trade goods, and more likely that they were brought by the craftspeople themselves.

The mould was used to cast disc-shaped pendants in metals with a low melting temperature, such as lead or tin. A miscast lead pendant of a slightly different type has been found on the same plot in a

context with the same date, and it seems highly likely that it was produced by the same craftsperson(s). A total of six disc-shaped pendants of lead have been found at Kaupang and as two are miscast, it seems highly likely that they were all produced at the site (Pedersen 2010, 258–267). Five of them, including the one on plot 1A, have a characteristic motif with an X-shaped cross that is known from a larger group of pendants, brooches and finger rings found in Mainz (Wamers 1994). Accordingly, it seems highly likely that the motif has its origin in the Frankish/Frisian-area, and this might also be the area from which the volcanic tuff originated. Thus it seems possible that they were brought together from this area and to Kaupang. It is even possible that it was brought by a person from this area. Several dress accessories from the Frankish/Frisian-area have been found at Kaupang and Egon Wamers (2011, 90–92) suggests that they had been lost by a group of Franks or Frisians who were visiting Kaupang, or staying there for a more extended period of time.

This person may have been highly mobile. Pendants with exactly the same motif with an X-shaped cross are found in all the Scandinavian Viking-age towns and in Truso, Poland (Serning 1956, fig. 10; Anspach 2010; Feveile 2006, Tavle 53; Auch *et al.* 2012, fig. 48). They are strikingly similar, but cast in slightly different moulds, and I find it highly likely that it is the same hand behind the carving of all of these moulds. In all the cases where their context could be dated they belong to the same period, AD 810–850 (Feveile and Jensen 2006, 128–130, 145; Pedersen 2010, 262; Auch *et al.* 2012, 168). Thus the craftsperson seems to have been traveling over large areas.

A high degree of stability is suggested by other finds at Kaupang. The lead models were most likely produced, used and left at Kaupang, as they were most likely made of the raw material available at Kaupang (Pedersen 2010, 321). Thus it seems less probable that they were in the hands of itinerant craftspeople traveling over huge areas. The use of the specific type of local clay also seems to point towards a strong connection to the town, at least for some members of the group. All in all this might suggest that the non-ferrous metalworkers in the Viking-age towns made up a rather heterogeneous group where some travelled over larger areas, while others settled for a longer period of time. Discussing this rather complex picture it is important

to bear in mind that non-ferrous metalworking is *group work* and the degree of mobility might have differed. The material from Kaupang points towards a model master with a permanent base in the town. The existence of such a local master would also explain his/her knowledge of locally available raw materials such as the clay used in the production of moulds. But the latter could also have been provided by a less skilled local worker hired to operate the bellows, and to carry out other simple tasks like collecting cow dung from nearby farms.

Were they all men?

It is often assumed that Viking-age non-ferrous metalworkers were men. They are often referred to as craftsmen and Johan Callmer (2002, 150) states: 'Like most crafts connected with fire, metal work was a male activity'. His conclusion is not based on any further discussion, and it is worth noticing that he is less peremptory when it comes to textile work: 'This part of the work was most probably mainly in the hands of females (although we do not know for sure)' (Callmer 2002, 149). Others have based their interpretation on Viking-age graves, in which metalworking tools are most often found in male graves (Petersen 1951, 74). But graves with securely identified non-ferrous metalworking tools are rather few and there are several graves in this category without any gender specific objects (Skjølsvold 1951). Moreover it is questionable whether the grave material reflects the situation in the Viking-age towns. Most graves with metalworking tools have a wide range of tools and personal equipment, and they might refer to elite ideas or the 'ideal smith', a figure known from contemporary myths and legends, and may not necessarily reflect actual urban craft activities (Pedersen 2009).

The material from Kaupang provides few hints on the gender of the non-ferrous metalworkers and the gender neutral terms 'craftspeople' seems much more appropriate. I will not exclude the possibility that women and children could have taken part in the craft activity. This is at least suggested by one of the crucibles (Pedersen 2010, fig. 4.55). It is shaped by the use of a finger, and a tiny one at that, which is more likely the finger of a woman or a teenager than a fully grown man. We should also keep in mind the many different materials used in non-ferrous metalworking. It is, for instance,

possible that the production of crucibles was a female task, as pottery production has often been regarded as a female craft (Aure Bagøien 1980, 97–99). Thus gender seems to be a relevant topic for future research on non-ferrous metalworking.

Conclusion

The material from Kaupang has contributed to a new understanding of urban craftspeople involved in non-ferrous metalworking. First of all the term bronze casting should be discarded, as the workshop assemblage demonstrates the existence of a group of non-ferrous metalworkers mastering a wide range of techniques, metals and alloys. They were highly skilled and their broad knowledge was most likely acquired through apprenticeship. They had knowledge of, and access to, a wide range of raw materials, including high-quality raw materials imported from some distance and especially selected local resources. They also improved the quality of available raw materials. During the century when non-ferrous metalworking was carried out at Kaupang, imported raw materials seem to have been acquired in several different ways: some were most likely provided by the craftspeople themselves, while others were more likely brought to Kaupang by trade.

The non-ferrous metalworkers produced a broad range of dress accessories and tools for different social groups. Serial production is a key characteristic, as expected from earlier studies of urban craft activities. However, tools from Kaupang demonstrate that there is no straightforward equation between serial production and production for an anonymous market. Rather, serial production was a method used in diverse situations. Some of the products were most likely sold on the market, while others were probably produced according to demand. In conclusion, Kaupang's non-ferrous metalworkers appear as self-confident and conscious actors who took advantage of the circumstances provided by the emergence of Viking-age towns, and by the establishment of larger markets.

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Chapter 5

Crafts in the landscape of the powerless. A combmaker's workshop at Viborg Søndersø AD 1020–1024

Jette Linaa

> *'Tóki Smith raised this stone in memory of* Þorgísl *Guðmundr's son, who gave him gold(?) and freedom.'* (Danske Runeindskrifter)

What is a craftworker? The introduction of the term 'actor' in craft discussions invokes a perception of free agents with the power to choose what to produce, where to sell it, and to whom. But craft production seems to be more complicated than that, and there are many steps on the scale between craftworkers as free agents and unfree thralls. The aim of this paper is to emphasise this by drawing new conclusions from earlier work on a remarkable structure: a workshop, dated 1018–1024, which came to light through an equally remarkable research initiative: The Viborg Søndersø 2001-project. The workshop in Viborg clearly demonstrated that production was undertaken on a short-term, seasonal basis, and as such the conclusion that the craftworker was a free, itinerant powerful, actor is appealing. However, other traits in the material point in a quite different direction, and this paper is an attempt to shed light on this contradiction. Thus, the author wishes to throw new light on a craftworker who might have been more powerless than powerful, and to do that by analysis of traits in manufacture and spatial organisation that might generally point in the direction of a controlled production. The paper also seeks to investigate a bias in archaeological craft studies: analyses of crafts often appear to be driven by a functional

perspective, in which efficiency is emphasised, while cultural factors fade into the background. This paper seeks to analyse this discourse of rationality through a contextual analysis of a combmaker's workshop and its spatial organisation, with special reference to cultural perceptions of purity and power. Further investigations into other aspects of the craft, like an examination of the gender of the craftworker, will be performed at a later date.

Background

The question of the role of craft and craftworkers in Nordic urbanisation is almost as old as the study of craft itself. Excavations of Viking-age urban and proto-urban sites have recovered traces of craftworkers as bead-makers, combmakers and silver, copper and iron smiths, and tombstones emphasise the tools of crafts as signifiers of the deceased. As a result, the organisation, status and integration of craftworkers stands as a central element in Scandinavian discussions of urbanisation processes, and the issue of the itinerant or residential status of craftworkers has frequently been raised since it was initially discussed in the influential works of Axel Christophersen and Anders Andrén (Christophersen 1980a; Andrén 1985; see also Carelli 2001). So the question is if the craftsworkers were free agents moving freely from market to market, unfree slaves controlled by others or in a middle position as urban tenants, paying tributes or rent in products (Christophersen 1980a; Andrén 1998). The excavation of the workshop in Viborg clearly demonstrates that this was indeed a short-term, seasonal production, and as such the conclusion that this was one of the free itinerant actors in early urbanism seems obvious. But other traits in the material may point at this craftsworker being powerless.

The unfree craftworker as part of the Viking-Age population is a wellknown phenomenon even in Denmark, where historical sources from the Viking Age are sparse (Karras 1988, 83–85; Poulsen 2003, 393). A few long-known runestones (one of them quoted at the start of this paper) tell us of the gratitude of freed craftworkers to their former masters, who gave them their freedom. As runestones constitute a complex source, our conclusions cannot be too rigid, but it does seem evident that people who called themselves 'smiths' were formerly unfree (Andrén 2000). Nonetheless, just as we should avoid

generalisations in which all craftworkers are free agents, so should we resist the urge to declare them all unfree, but should rather note the many steps on the scale between craftworkers as free entrepreneurs and unfree thralls. The discussion of the craftworker as intermediary or mediator, powerless or actor (in the sense of Latour) is central to our question. If powerful, the craftworker becomes a full actor, shaping materiality according to his wishes. And if powerless, the craftworkers cease to be mediators and become intermediaries instead, mindlessly passing on materiality; deprived of the power to influence their production and the materiality that goes through their hands.

But how do we address the question of power or lack of power in the archaeological record? We know the unfree from the grave material, but they are not easily observed in settlement archaeology. If we are to be able to discuss, on a sound archaeological basis, the role of powerful and powerless actors; mediators or intermediaries in craft organisation, it might be fruitful to study control. That is to say that we should look for the presence or absence of power to be expressed in various degrees of control: whether that be control over space, over production, or over life. We may see spatial power or lack of power in degrees of spatial organisation in crafters settlements; in this case primarily as patterns of waste disposal, degrees of spatial organisation, and in the geographic and/or symbolic distance to settlement centres. Power over production may be seen in the range and variety or lack thereof of manufactured types, and in the degree of efficiency in the use of raw material. Control over life can be seen in the burial evidence. In that sense, a craftworker may be seen as a powerful actor when the following conditions are observed: (1) A central location; (2) A high degree of spatial organisation in waste disposal; (3) A wide range of produced types; (4) An efficient use of raw material.

This may indicate that the craftworker was able to locate the workshop according to his/her preference, that he/she was able to monopolise waste disposal around the workshop; that he/she was able to adapt production in order to a meet a diverse demand, and that he/she had an economic interest in large-scale production. On the other hand, a decentralised location, a limited degree of spatial organisation, (perhaps with unspecialised waste disposal), a narrow range of types produced and an inefficient use of the raw material

may indicate the actions of a weak or subordinate craftworker. Such craftworkers may have been unable to select their own working location, unable to avoid other peoples' waste, unable to take personal decisions about what to produce, and unable to vary their production. The author aims to shed light on these questions, using the presence or absence of traces of spatial control at Viborg Søndersø as signifiers of the relative power of the craftworker, in relation to his contemporaries on site. This will be undertaken through a study of the spatial distribution of production and domestic waste in and around the workshop.

The town and the site

The city of Viborg is situated in the heart of Jutland, where ancient roads connecting Jutland with the rest of Europe cross those leading from the North Sea in the west to the Skagerrak in the east. Its situation at this important communication crossroads meant that Viborg was, from ancient times, a site of power. It was the location of the Jutish 'thing', a gathering of the men of all of Jutland, where kings were elected, laws passed and judgements delivered. Viborg had this role from the Iron Age until well into the 17th century. Few written sources remain from Viking-Age Viborg, but the place is mentioned several times in the early 11th century: King Cnut the Powerful (*c*. AD 995–1035) minted coins here in AD 1018, his son Hardicanute was elected successor here in AD 1027, and Viborg became a bishop's seat in AD 1065.

Despite its political importance, Viborg has never been a very large town. Around AD 1000, settlement seems to have comprised five or six very large farms and a number of smaller houses. Most of the farms were built on hills close to the 'thing' site where the cathedral was subsequently built around AD 1060. However, at least one farm was sited to the east of the town, on a slope running down towards the lake, Søndersø (Hjermind *et al.* 2005, 558–562). Little is known about this farm, but we do know that the limits of its fenced land extended into the wet, swampy meadows near the lake at the bottom of the hill. It was in this area that a workshop was built in AD 1018, only to be demolished again in AD 1025. It was rebuilt in AD 1026 and finally abandoned around AD 1030. This paper will deal with the waste and artefacts produced here by the craftworker, all of which

was found in connection with the first phase of the workshop (Figure 5.1).

Phase	Constructions	Use of hut	Crafts	Dendrochronological dating
1	Before the hut			
2	The hut is constructed	Smithy inside the hut		1019–20
3	The hut is repaired	Smith inside the hut. Combmaking inside the hut	Minor production	Winter and early spring 1021–1022 AD
4	The floor is repaired	Combmaker leaves the hut	Intense production	1022–1023
5	The hut is demolished			Winter 1024–25 AD

Figure 5.1: Schematic overview of building phase, comb production and dendrochronological dates. (After Hjermind, Robinson and Iversen 2005).

The research project

In 2001 Viborg Stiftsmuseum initiated the *Viborg Søndersø 2001* project in cooperation with National Museum of Denmark - Environmental Archaeology and Archaeometry. The project, which was funded by the Velux Foundation, involved specialists from a range of national and international research institutions: National Museum of Denmark -Environmental Archaeology and Archaeometry; Zoological Museum – National History Museum of Denmark, University of Copenhagen; Faculty of Science, University of Copenhagen. In 2005 the entire project was published (Iversen *et al.* 2005). The aim of the project was, through the application of an intensive multi-disciplinary approach, to shed light on daily life in the settlement, as well as to develop new methodologies and new cooperative working practices between archaeology and the natural sciences, (Hjermind *et al.* 2005). The project was published in 2005, but the material still contained potential suited for further studies, so when the 'Actors and Affordable Crafts' exploratory workshop was initiated by Steve Ashby, Irene Baug and Gitte Hansen, this proved to be a chance to revisit the workshop to release further information on aspects of the site there were less central in the original work.

This project was a product of previous research in the earliest history of Viborg: Investigations in the 1980 along the north part of Viborg Søndersø had revealed well-preserved Viking-Age finds and structures in the wet area near the lake (Figure 5.2). The excavated areas were small, and only in one area (field V) were traces of larger buildings found. However, one trench, (trench F) revealed the corner of a house with wattle walls and multiple floor layers. This house was chosen to be the topic of further investigations in the Søndersø 2001 project. Subsequently a ten x ten metre excavation was undertaken on the site of this house. As the site was of limited size, there may very well be parts of the workshop area, especially the waste disposal area, that were not investigated in this intervention. This is regrettable, but on the other hand, well in line with the purpose of the project: to develop new methodologies in the interface between natural science and archaeology by analysing a limited space in maximum detail, in order to achieve the best possible insight into as many aspects of the site as possible. In this excavation extensive use was made of scientific

analyses relating to site formation, post-depositional processes and conditions of preservation, as well as detailed artefact recording, analysis and quantification. The project encompassed analyses of individual contexts, site-formation processes, plant and animal remains (vertebrates and invertebrates), dendrochronology, and traces left by crafts such as combmaking, leatherworking and metalworking, as well as domestic activities, including the spatial distribution of these traces (Iversen and Thomsen 2005). Within the framework of the project, the author carried out analysis of the combmaking evidence (Linaa 2005) and, in cooperation with Jesper Hjermind, analysis of the spatial distribution of artefacts and waste outside the workshop (not only of antler, but also of animal bones, pottery, quernstones, hones, textiles, leather, and metalworking waste (Linaa and Hjermind 2005). As a detailed analysis of the technical aspects of comb production has already been published (Linaa 2005), less emphasis will be placed upon this element of the work here.

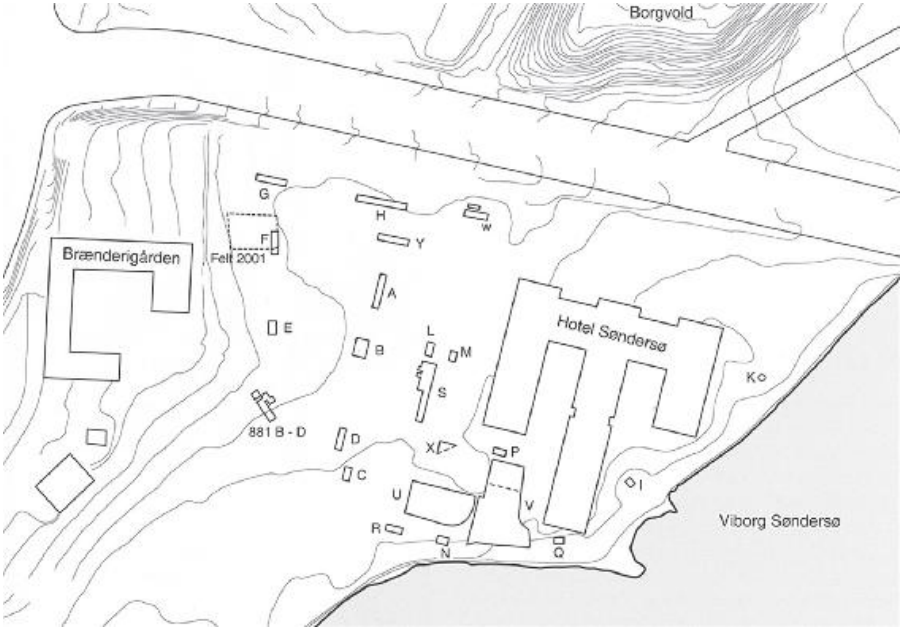

Figure 5.2: Overview of the areas excavated in 1981, 1984–85 and in 2001. Drawing Svend Kaae (After Hjermind, Robinson and Iversen 2005, 19).

The workshop area

In the project, the workshop was excavated, together with a fence and latrine, as well as waste deposits in and around the building (Figure 5.3). The earliest activities on site were revealed to be the constructions of the walls of the workshop, closely followed by a ditch and a fence running north-south, dividing the area into two. Dendrochronological dates show that the structures were built at about the same time: the hut in AD 1018, the fence in AD 1018–19 and the latrine in AD 1019–20 (Thomsen and Iversen 2005, 83–85). The fence divided the site into an eastern part with a workshop, and a western part with a latrine. Both were used in the period AD 1020–1025, after which the workshop was demolished (Fruergaard and Moltsen 2005). Analyses of the insect and other invertebrate remains indicate that the workshop, and indeed the whole of the investigated area, was used seasonally during winter and early spring (Kenward 2005, 205). As the combmaker's activities ceased precisely as the first workshop was demolished, attention will be focused here (phases two and three). As the 1980 and 1984–85-campaigns had revealed traces of a possible larger structure to the south east of the workshop, it is possible that the workshop and the fence belonged to a farm located to the east of the site. It is possible that another farm was located on the higher ground fifty metre to the east of the workshop, but that is uncertain, as excavations on this area have yet to be undertaken, and there is no clear evidence for the existence of other farms in the area. Moreover, while it is theoretically possible that the workshop was constructed on low land separated by ditch and fence from an older occupation on the higher ground to the west, environmental investigations (most notably analyses of vertebrate and invertebrate remains) indicate an absence of densely populated areas in the vicinity of this site. A nearby farm is possible, but not a densely populated urban site.

The building itself was a small structure, measuring approximately three x five metre with undaubed wattle walls (Thomsen 2005). The building was equipped for metalworking, with a sand-filled wooden frame providing the foundations for a forge, while a deep circular pit housed the stock of an anvil, and a solidly-fixed post is interpreted as a support for bellows. Numerous fragments of (*i.a.*) iron and silver

revealed that the building was used on a seasonal basis, primarily as a smithy and metalworking workshop. It was of light construction, and traces left by water and the remains of plants growing *in situ* show that rain and wind occasionally entered the building (Jouttijärvi *et al.* 2005). There were no traces of domestic use (such as food preparation or consumption) inside the building. Neither did it subsequently serve as a dwelling, but was reserved solely for craft use by smiths and a combmaker, who might or might not have been one and the same person (Jouttijärvi and Møller Andersen 2005). In the winter and early spring of AD 1021–1022, the building was used as a combmaker's workshop. The floor deposits contained many fragments of antler, which allowed a behavioural analysis to be carried out (Linaa 2005, 385f.). This analysis indicated that the combmaker worked just inside the doorway, probably to take advantage of the daylight; here he dropped several antler plates, shavings and chips. Further shavings were found in the western part of the building, probably natural 'offshoots' produced during the manufacturing process (Jouttijärvi *et al.* 2005, 316–319). In early AD 1023, the craftworkers left the building for the last time. It remained empty, but in good repair, until its demolition two years later, where a new building was erected in its place (Thomsen 2005,72).

Figure 5.3: The workshop from the south-east. To the right is the workshop, in the middle the fence, and to the left is the latrine (K293/K286) (Drawing by T. Thomsen. After Thomsen 2005, 67).

The combmaker's waste

The antler remains from the site are well-suited, first and foremost, to a study of comb production (Linaa 2005). There is a large quantity of material relative to the excavated area, and the precise recording methods employed have ensured reliable information on the production process. Much of the material was found in secondary deposits. The area to the north of the building, in particular, was used as an organised dump for antler waste, whereas primary deposits were found inside the workshop. Not all of the material arising from production was recovered, as the deposits extended to the north, beyond the boundaries of the excavation. The antler assemblage is therefore presumably representative of the production of combs at this particular locality, but not for the production of combs in Viborg as a whole.

Methodology

The project's economic and scientific framework allowed the application and testing of detailed and innovative methods of recording and quantification; methods that were applied to both the combmaking waste and to the entirety of evidence for the disposal of waste and artefacts (both craft- and domestic) in the area around the workshop. During the excavation all contexts were fine sieved and context volume in litres were measured; an approach that has proven highly beneficial for the study of waste disposal patterns and production intensity. Since the excavated deposits were completely waterlogged, the layers were largely uniform in composition, and post-depositional compression and decomposition were uniform across the area, the quantity of combmaking and other types of waste (in artefacts/waste per litre) could be reliably recorded for each context, and subsequently compared. This means that the quantity (weight/ number/ECE – see below) of waste could be related to context volume; the find concentration could then be calculated, and the data subjected to statistical analysis (Linaa 2005; Linaa and Hjermind 2005, 127). Using this method, concentrations of waste within individual contexts could be distinguished in spatial terms. This proved informative; it was possible to say, for example, that a particular concentration was the result of buckets of waste being

deposited on open surfaces. *The combmaker's waste* (put forward in Linaa 2005) was recorded according to context and square metre, using a standard classification system (Figure 5.4) (after Bojsen Christiansen 1998 tab. 16, with additions from Ulbricht 1978, 1984; Ambrosiani 1988, 123; Rytter 1997, 20; 2002, 77; MacGregor 1999). Dimensions, decoration, tool marks and traces of wear were also recorded. Quantification of the material proved to be a complex matter. The simple question of 'how much combmaking waste is present?' does not have an equally simple answer. Thus the material was quantified in four different ways. All fragments of antler were weighed. The larger pieces (groups one to three and five) were weighed individually, according to classification and square metre, whereas the tiny fragments (group four) were weighed in groups according to classification and square metre. The obvious variation in weight between the various classes of artefact meant that contexts containing one or more large, heavy pieces of antler would dominate in the statistical analysis unless some action was taken to correct for this. With this in mind, all fragments were also counted. This strategy proved quite useful as, to a great extent, it formed the basis for correction of the statistical analysis of find concentration. An estimate of the number of combs manufactured was obtained using ECE (Estimated Comb Equivalents); ECE was calculated from the number of upper parts of toothplates present (Rytter 1997; 2001; Linaa 2005). These parts were removed in the final production stage, after the combs had been assembled and the sideplates mounted. The average length of the finished side plates was twenty centimetre. Consequently, an estimate of the number of combs produced in each context was calculated by adding together the widths of the upper tooth plate parts and dividing the sum by the average plate length.

The analysis of all finds from around the workshop building followed similar principles (Linaa and Hjermind 2005) and concluded that the disposal of different waste types was highly spatially organised. An analysis of the finds from the areas north, south and west of the building showed that craft waste (from the combmaker, metalworker and leatherworker) and domestic waste (animal bones, fragments of quern stones, and pottery) had been deposited in separate areas (Linaa and Hjermind 2005). Domestic waste was found to the west of the fence, around the latrine, and to the south of the

workshop, whereas the area to the north of the workshop was used primarily as a dump for secondary waste from crafts, and primary craft deposits from the working of metals and antler were found inside the workshop. This rigidly structured system of disposal may have emerged out of the fact that domestic and craft activities were carried out at different locations. While the craft waste was concentrated in individual contexts, domestic refuse was spread on what seem to have been open surfaces. The latter then appears to have been redeposited and transported further than the former, indicating that it was produced at a distance from the site and simply deposited here. However, the distribution clearly indicates that it was spread in the period during which the workshop was being used. A large piece of antler was found in the latrine (where it must have been redeposited, probably as an example of a particularly annoying piece of waste being thrown in), whereas very small antler fragments were found to the south of the workshop – probably arriving here after being carried around site on the soles of shoes.

Group	Category	Main type	Subtype	Subtotal	Total	Weight(g)
1	**Raw material**				**103**	
1.1		Raw material	Scull with burr	1		366.0
1.2		Burr	Burr	12		2,061.0
1.3		Antler	Entire antler	16		4,039.8
1.4		Tine	Tine	50		5,318.5
1.5		Undivided antler	Sawn tine	10		849.0
1.6		Undivided antler	Sawn antler	12		1,408.3
1.7		Undivided antler	Tine with sawn tip	1		114.0
1.8		Undivided antler	Irregular	1		26.6
2	**Semi-manufacture**				**111**	
2.1		Semi-manufacture	Split antler with soft tissue	73		640.3
2.2		Semi-manufacture	Spilt antler without soft tissue	18		334.0
2.3		Semi-manufacture	Halved antler	18		398.0
2.4		Semi-manufacture	Side plate	1		4.5
2.5		Semi-manufacture	Tooth plate	1		4.5
3	**Blanks**				**28**	
3.1		Blank	Side plate	7		47.4
3.2		Blank	Comb tooth	15		1.5
3.3		Blank	Comb tooth plate	6		22.0
4	**Waste**				**121,902**	
4.11		Porous tissue	Triangular	374		1,054.1
4.12		Porous tissue	Four-sided	21		132.1
4.13		Porous tissue	Trapez	16		122.8
4.14		Porous tissue	Irregular	191		503.8
4.21		Shaving/chip	Compacta	20,566		1,322.4
4.22		Shaving/chip	Surface	3,068		1,546.2
4.23		Shaving/chip	Porous tissue	96,863		7,550.5
4.24		Shaving/chip	Unidentified	127		26.2
4.31		Compacta	Fragment of side plate	76		65.7

Group	Category	Main type	Subtype	Subtotal	Total	Weight(g)
4.32		Compacta	Fragment of side or tooth plate	31		16.8
4.33		Compacta	Top part of tooth plate	498		329.1
4.34		Compacta	Other parts of tooth plates	34		26.3
4.4		Other	Split antler	37		523.0
5	Other				66	
5.1		Other	Peg	1		10.8
5.2		Other	Ring	1		28.8
5.3		Tool	Shaft	2		101.0
5.41		Comb	Side plate	5		15.8
5.42		Comb	Comb tooth	18		3.2
5.43		Comb	Comb tooth plate	9		13.7
5.44		Tool	Wedge	21		165.4
5.5		Unidentified	Unidentified	9		9.6
Total					122,210	29,202.7

Figure 5.4: The classification of the combmaking waste from the site, with numbers and weight (After Linaa 2005, 368).

The combs

The production waste derived from the production of at least forty-three combs, all of which appear to have been single-sided examples of quite uniform dimensions. As the combs and the comb-production processes have already been presented, less emphasis will be placed on these here (Linaa 2005). The waste indicates that the combs were also uniform in form and decoration, with grooved lines forming geometric patterns. Their type and decoration proved quite similar to those of combs found among combmaker's waste from other sites in 11th century Viborg, Aarhus and Lund (Blomquist 1942, 136 fig. 8; Blomquist and Mårtensson 1963, 204 fig. 230; Andersen *et al.* 1971, 149; Bojsen Christensen 1998, 125ff., fig. 3b–c). Analysis of the burrs (basal sections of antler) showed that two saws had been used, but the splitting and sawing techniques were identical. So was this evidence of the activities of two combmakers, or did a single combmaker simply change his saw? One context, K392, provided further insight. It contained a large quantity of waste, relating to the production of at least twenty-seven combs. This context even yielded the remains of the broken shaft of a saw; it is tempting to read this as showing that the combmaker broke his saw under the stress of this production. The production process can be traced through the waste that was produced: removal of the burr, splitting of the beam and tines, removal of the spongy tissue, and sawing off of uniform plates, prior to decoration and mounting of the comb. It seems that this particular craftworker did not accumulate any half-finished products, but finished one comb at a time, as most of the contexts contained waste from all stages in the production process. Of course, we will never know how frequently he swept the floor, because the secondary deposits must be the result of sweeping, but the assemblage gives the impression that a specific antler was transformed into combs in a relatively short period of time.

The raw material and its use

Judging from the numbers of burrs present, the raw material at Søndersø appears to comprise the remains of at least fourteen antlers. These are from roe deer and especially, red deer (Enghoff 2005, 255), probably of local origin. The roe deer burr had parts of the skull

attached, showing it to be was a slaughtered animal, while the red deer burrs were all from cast antlers, and this corresponds well with the situation seen at comparable combmaking sites. As roe deer seems less suitable for comb production, it might have been used for wedges. As only one animal was killed or found dead, little of the material appears to have originated from game animals. However, if antlers from slaughtered animals were sawn off above the burr they would not be present in the assemblage, so the number of butchered animals might be higher than we can perceive. Nonetheless, it must be emphasised that the burrs are the most appealing parts of the waste in visual and tactile terms, making them more likely that other elements to be collected and used or disposed of away from the site. For instance, at Konghelle, it seems that burrs were picked up and thrown far away from the deposition site, perhaps by children, to a greater extent than other categories of antler waste (Rytter 1997). Nonetheless, from the material present, there is little evidence of the production of combs at Søndersø being linked to hunting privilege, as has previously been stated (Bojsen Christensen 1998, 145; Rytter 2002, 84; Enghoff 2005, 255). The meticulous recovery of this large assemblage of production waste allowed detailed analysis of the use of the raw material, and it seems to have been inefficiently exploited, as fifty tines remained intact. The working techniques at Søndersø can be said to have been fully professional – the waste is clearly uniform, and the technique comparable to that seen both at Haithabu and at the slightly later assemblage from Schleswig (Ulbricht 1977, 27f.; 1984, 23f.).

All the waste appears to (1) originate from comb production, or (2) represent parts of combmaking tools such as handles (probably for chisels or saws), and antler wedges of precisely the type known from Lund, Sigtuna, Haithabu, and Schleswig (Andersen *et al.* 1971, 253f.; Ulbricht 1978, 83; 1984, 30, 62; Ambrosiani 1981, fig. 95; Ros 1990, 83f.; Bojsen Christensen 1998, 140; Linaa 2005, 377). Although many of the unused tines appear to be well suited to the manufacture not only of combs, but also gaming pieces and other small items (i.e. items which were manufactured in other areas of Viborg and also, for example, in Haithabu, York and Konghelle) (Ulbricht 1978 abb. 3; Bojsen Christensen 1998, 142f.; Macgregor 1999, 1916ff.; Rytter 2002, 81f.), these were not produced by the combmaker here. Just as

was the case with the inefficient exploitation of the raw material, this specialised production may indicate that production at Søndersø was undertaken *to order*. If the estimated number of antlers represented is correct, each antler provided the raw material for only three combs. This distinguishes the assemblage from material previously recovered at Viborg Søndersø and also that from Ribe, where the raw material was exploited much more intensively (Ambrosiani 1981, 126; Bojsen Christensen 1998, 145). Inefficient exploitation of the raw material was observed in the early phases at Konghelle, and may be characteristic of early comb production (Rytter 1997). Such an approach suggests that the craftworker had little interest – economic or otherwise – in reducing waste and exploiting the raw material to its full potential. This may indicate, in turn, either that antler was abundant as a raw material, or that the craftworker did not obtain it himself (Robinson *et al.* 2005). However, this is only valid if the craftworker was guided by economic considerations and a belief in efficiency. This is assumed to be the case in many analyses of crafts, but it must be emphasised that other factors may be at stake. If the craftworker was not in a position to make a profit by selling or exchanging the products, there would probably be less motivation in exploiting the raw material to its fullest extent. If we accept the concept of efficiency/lack of efficiency as meaningful, it may indicate that the production in Søndersø was undertaken to order, rather than for sale by a craftworker with little opportunity to sell by-products such as dice, gaming pieces and the like. Based on the evidence so far, it can be suggested that production to order of this kind may have been characteristic of at least a subset of craft activities in the 11th century. Subsequently, in the 12th and 13th centuries, combmakers may have produced for a market; this, at least, is the indication of the Konghelle assemblage (Rytter 1997).

The scale of production

The annual scale of production cannot be measured precisely, and given the considerable fluctuations in production in this workshop, an annual production rate might not even be very meaningful from the perspective of either consumption or production. Variations in the quantities of waste in different contexts demonstrates that the site saw a very flexible production, wherein the number of combs produced

varied greatly between seasons. Three contexts appear to contain waste that relates to a phase of large-scale but short-term, intensive production in 1022–23: K426, K410 and K392. K392 is by far the largest of the three, containing waste from the production of at least twenty-seven combs, and in total the intensive production period in 1022–1023 resulted in the manufacture of at least thirty-eight of the forty-two combs produced in the workshop. Before this intense phase of production there appears to have been episodes in 1020–21 and 1022, during which only a few combs were produced. Corresponding deposits arising from large-scale activities have been found at Konghelle where they have been interpreted as similar secondary deposits but the fluctuations in scale of production observed at Viborg do not seem to be evidenced at these sites (Rytter 1997, 57f.). In early Lund a production phase has been discovered that carries a remarkable similarity to the production in Viborg Søndersø regarding seasonality and scale.This phase is dated to the 11th century (Carelli 2001, 149).

At this point it is important to stress that the analysis of the scale of production rests upon the excavated material, which is naturally limited by the relatively small site: it is possible that production waste was spread further to the north of the excavated area, such that we know nothing about it. If the waste was deposited in pits as seen at Konghelle and Lund (Ryding 1985; Rytter 2007), such pits might significantly affect estimates of the scale of the comb production at this site; the combmaker might have produced more combs in total than the number produced from the waste studied to date. However, by no means would it affect the scientific analysis derived from the area we know: the workshop itself and its immediate surroundings. Neither would it alter the results or implications of the technical analysis of the waste in the immediate vicinity of the workshop; the extremely narrow timespan of the production, the seasonality of production, and the contextual fluctuations in quantities of waste remain as genuine phenomena. The same can be said for the fact that only one craftworker seems to have been active on the site, the presence of both metalwork and combmaking waste in the workshop showing it to have been used for various crafts, the limited range of products, and the spatial distribution of types of waste around the building. In short, the existence of unexcavated waste away from the

site may well influence estimates of the total number of combs produced in the two winters during which the workshop was active, but it will hardly have a significant influence on the conclusions about the mode of production on site.

The general distribution of production – and domestic waste around the workshop

As we have seen the combmaking waste was distributed on the open surface to the north of the building, and small pieces were found scattered to the south, while a large piece of waste was found in the latrine located to the west of the building. With this in mind, it is interesting to note that a fence separated the workshop area from the latrine to its west. The fence might have encompassed the workshop itself, or it might have enclosed a larger farm to the east of the workshop, making the workshop part of the farm. Given that no secure traces of other fences or ditches indicating regular plot structure were found in previous excavations of the area, it seems probable that the workshop might either have been a singular feature or have belonged to a larger farm. This is supported by the results of our entomological analysis, which conclude that use and occupation of the site seems to have been newly established, sparse, seasonal, and of non-urban character, just as the pollen analysis seems to support a largely agricultural use of the area with traces of evidence for the feeding of cattle (Christensen and Fischer Mortensen 2005, 147). This spatial boundary is predated by the workshop, but predates the latrine constructed a year later, in 1020 (Thomsen 2005, 64–70). The fence is of course a physical marker, but it may has also have acted as a symbolic, legal or administrative boundary, as has been proposed in relation to medieval settlements, and it must have been clear to the craftworker that this fence was an important boundary (Andrén 1999; Anderson and Hållands 1993). Indeed, the craftworker seems to have respected this fence as a spatial boundary with a bearing on waste disposal, because very little production waste (neither from combmaking nor from metalworking) was found distributed to its west. Domestic waste had, however, a very different distribution pattern: animal bones and other remains of meals, pieces of quernstone and sherds of pottery were scattered all over the area, both

to the east of the fence, near the latrine, and to the west of the fence by the workshop, but not in the workshop itself or in the primary production waste disposal area to the north of the workshop. The spatial analysis of the distribution of domestic waste within contexts indicates that it had been dumped from the south of the site while the workshop was in use. That the production waste and the domestic waste were rarely mixed indicates that the domestic waste comes from outside the workshop; not from activities within it: it was not the craftworker's own waste: Neither was it spread by dogs, as is shown by the presence of fragments of quernstones and pottery as well as animal bones. There is thus a remarkable difference in waste disposal patterns between what seems to be a structured and orderly workshop area and this seemingly unstructured disposal of domestic waste. The craftworker seems to have respected the fence as spatial boundary of consequence to his/her disposal pattern, while the spreaders of domestic waste did not. The craftworker does not seem, therefore, to have been in a position to control the deposition of domestic and related waste in the workshop area. The person even had to put up with an open latrine less than one metre away from the workshop. This latrine may well have been situated on another plot, given that the fence predates the latrine, but still it was erected well within the use-time of the workshop, which may be significant. Very few Danish sources deal with the spatial arrangements surrounding Viking-Age latrines, but most seem to have been placed some distance from occupied buildings (Fruergaard and Moltsen 2005). Certainly in the high middle ages, where archaeological sources on latrines are abundant, latrines seem to have been placed at the rear of the plots, as far from the dwelling houses as possible (Linaa and Skov 2003). This might lead to the conclusion that our workshop was situated at the periphery of the occupation area. Thus, the layout of the site may be interpreted as a classic dichotomy, with a fence separating 'pure' and 'impure' areas (Douglas 1966). Nevertheless, this organisation of space, which seems to have been planned, was not upheld in all aspects: the posited 'culturally pure' area to the east of the fence around the workshop seems to have been polluted with impure domestic waste, indicating that two different practices of waste management were being played out here. Few sources tell us about the concepts of purity and impurity in Viking-Age Viborg, but it seems

significant that the workshop was located in close vicinity to a latrine and refuse dump (i.e. an area that would definitely have been regarded as culturally impure in medieval and early post-medieval Denmark). In the Middle Ages, when Danish documentary sources permit the study of this aspect, food waste, butcher's offal, and latrines; basically everything that could rot, smell or decompose, was considered 'impure'. This cultural 'impurity' was transmitted to the people who touched the refuse and waste, most notably the hangman's assistants who acted as nightmen and scavengers, and who emptied the latrines (Fenger 1988; Douglas 2004). One may speculate as to whether a similar cultural impurity adhered to the domestic waste and to the content of the latrine, and if this eventual impurity could transfer to the people who touched it, as it would do some centuries later. At the very least, the pattern of waste disposal indicates the existence of different domains within the site, controlled by people with different practices. In an analysis of power it seems important that the craftworker was unable or unwilling to exercise control and to prevent the construction of the latrine and/or the spread of domestic waste on his primary domain; the carefully structured workshop area.

Itinerant professional, domestic producer or situational actor?

It is important to investigate whether production was aimed at domestic (i.e. household) consumption or for sale in the broadest sense (i.e. distribution beyond the household of the producer) (Hansen 2005, 157), and this workshop proves interesting, given that it was clearly used on a seasonal basis. In a standard classification of craft activities, four types of producer can be identified: 1) household producers, 2) professional sedentary full-time producers, 3) professional sedentary part-time producers and 4) itinerant producers (Christophersen 1980; 1980b; Ambrosiani 1981, 32ff.; Rytter 1997; Hansen 2005, 158).

It will prove interesting to see how the Viborg Søndersø-site fits into such a model of craft production. In particular, the mixture of crafts evidenced at Viborg proves interesting. We cannot see how many individuals were active on the plot, but the use of the building,

the seasonal production, and the co-occurrence of waste indicates that the smith and the combmaker may have been one and the same person, mastering both skills and perhaps even functioning as a cobbler when the need arose. The tools, skills and knowledge required for this particular production, and the standardisation of the finished products, indicate that the craftworker was a professional in several crafts at least at this stage of his life (Hansen 2005, 157–159). The seasonal use of the workshop may indicate that the craftworker was an itinerant professional, notwithstanding the fact that a permanent workshop was used which, in terms of Hansen's classification, may be an indicator of the sedentary craftworker. Of course it is possible that he simply left the site because of a disappointing market. Consequently, the craftworker from Viborg falls into several categories in the standard classification system, as this craftworker was a skilled producer, working seasonally in a permanent workshop.

These apparent contradictions may derive from existing models of craft activities developed primarily with a point of outset in urban landscapes, with households of a limited size, and craftworkers free to choose to sell their finished products. In contrast, what we are looking at in Viborg might an example of controlled production in an aristocratically-dominated tribute economy, a situation that seems parallelled in early Lund (Wickham 1994; Carelli 2001). In particular, the very term 'domestic production', and the sharp distinction made between 'domestic' and 'professional' production on the grounds of size of output, seem founded on an assumption that domestic spheres were characterised by a uniformly small household. However, small households on small plots may have been a largely urban or even a medieval phenomenon. The numerous large Viking-Age farms and manors located in the rural landscape, with their extensive fenced areas, great halls, stables and many small buildings, indicate that at least some households were much larger than this, and differently structured. Accordingly, large-scale production may have still been intended for consumption within the immediate household, and cannot be assumed a priori to have been market-oriented. This all points to the need to keep an eye on the possible coexistence of several modes of craft economy – both a market oriented and a sort of tribute economy – at the same time. Indeed, the very flexible production at Viborg demonstrates the need for equally flexible views

of craft organisation, which allow for variation in household size, and take into account seasonal production, multi-skilled craftworkers and even production by actors with little personal control. At the very least, the highly flexible, and probably event-driven production at the Viborg site emphasises the need for flexible models of craft activities, in order to account for crafts being undertaken both inside and outside the urban space, directed towards a varied household. Such models might also benefit from taking into account concepts of power and control.

If we look at traces of control or chaos, power or impotence in the material, the seemingly inefficient exploitation of the raw material and the very limited range of products indicates production to order, whereby the employer (and probably an employer in the broadest sense of the word) provided the raw material, and was in a position to exert a total monopoly on its use. Thus the craftworker appears not to have been in control of the production, but rather to have been a controlled producer. The very location of the production seems at first hand to tell a similar story: the workshop area is not apparent as a landscape of power, but rather as a landscape of the power*less*, emphasised by what might be perceived as a contrast between order and chaos; a structured disposal of production waste contrasting with an unstructured disposal of domestic waste that does not originate from the workshop itself. Accordingly, the craftworker emerges as a powerless actor, who perhaps on some occasions needed to produce combs, and at others to function as silver-, bronze- and blacksmith, or even a cobbler in winter time. Of course, we cannot know whether the craftworker travelled to other proto-urban or early urban sites in the summer, and continued the production there. We can, perhaps, imagine a craftsman's settlement, occupied by itinerant artisans travelling from market to market and from town to town, in an annual cycle, but the very scarcity of combmaking waste around Viborg outside the Søndersø site does not allow further pursuit of this question. In Konghelle, several incidences of small amounts of waste at many locations have been interpreted as representing either remains left by itinerant craftworkers or those of multi-skilled craftworkers. This seems to be precisely the same situation as that revealed by the workshop in Viborg (Rytter 1991; 1997). A similar pattern comprising small amounts of waste has been encountered in

Bergen, Kunghelle and Lund, where this is mostly interpreted as representing itinerant or part-time craftworkers (Ryding 1984; Rytter 1997; Carelli 2001; Hansen 2005, 181–184). We must, however, take the context of the very landscape and the layout of the plot into account, and at Viborg neither seems to indicate such a use of the site. The cold, primitive hut on the refuse-strewn site next to the latrine indicates that our craftworker occupied a subordinate position relative to the other users of the site with regard to spatial control, whether due to poverty, a lack of power or a lack of personal choice.

Powerless craftworkers?

We cannot know whether the craftworker at Viborg Søndersø had been deprived of power. The social scale between free agents and thralls has many steps, and our craftworker might have been one of a group of 'urban farmers', paying tribute to the landowner in products, as suggested by Anders Andrén (Andrén 1985) But at the very least it seems that he had little control over his working environment and production. Similar traits can be discerned at other Viking-Age sites. Inefficient exploitation of raw material was also apparent in the early phases at Konghelle, and this may be typical of early comb production. It could be suggested that the combmakers in Konghelle were similarly powerless, but this point cannot be clarified without further investigation of the layout and landscape of the production site here (Christophersen 1982, 110f.; Carelli 2001). In turn, this suggests that the combs were produced to order rather than with a view to sale. It seems that specialised production ceased in the 12th century, when the exploitation of raw material apparently became much improved and the production range widened markedly to encompass needles, dice, and other items (Rytter 1997). This may indicate that the producers were now in control of the raw material, were producing for a market, and were, accordingly, free agents. It must be emphasised that many different systems of craft production may have been active simultaneously in various parts of Scandinavia. Furthermore, not only the production itself, but also the spatial organisation of the workplace and its location in the landscape, are important factors in any assessment of the craftworker's nature and stature. It is also important to remind ourselves that any conclusions as to the nature of the craftworker as *actor*, or regarding craft

organisation and craft activity must rely not only on the analysis of the production itself, but also on contextual analysis of the physical and cultural context. We have seen that fine-grained analysis of spatial organisation (including behavioural analysis and analysis of waste deposition from other crafts) may supply important insights into multi-skilled craftworkers, while in-depth analysis of the physical landscape (including the immediate surroundings, and deposition of pure and impure waste) may provide information on cultural and social perceptions of the craftworker and his fellows, while analysis of specialised techniques and behaviour provides a fingerprint of the craftworker's culture and individuality. Admittedly, the economic framework of the Søndersø 2001 project that allowed the scientific analysis that forms the basis of this paper is not easily matched. Nevertheless the project puts forward experiences from a cross-disciplinary and contextual approach, that may inspire future work.

We do not know what event led to the production in Viborg, but given the cities royal connections it might have been related to the actions or presence of king Cnut the Powerful. What we found was just a human sweeping floors and carrying buckets of refuse, throwing a particularly large and annoying piece of waste into the latrine, and walking through the refuse with tiny fragments of antler waste sticking to muddy feet. We found the hut, the insects, the growth and the waste, and through this we are now able to imagine the smell, the mud and the cold. We do not have a name, but unknowingly the craftsperson left a mark for us to read in the wear on his tools, in the traces of a fine-toothed saw on the burrs and in hundreds of thousands of tiny antler chips: signs of a meticulous workmanship. This human seems to have been able to exert little control over either work or workshop and, consequently, the lack of power is striking. Now, a thousand years later there is great satisfaction and not a little irony in the combined efforts of numerous scientists and researchers being able to place this humble human very securely in the spotlight; a spotlight he probably never enjoyed while living.

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Chapter 6

Bone-workers in medieval Viljandi, Estonia. Comparison of finds from downtown and the Order's castle

Heidi Luik

In the Middle Ages, Viljandi in south Estonia (Figure 6.1) was one of Livonia's smallest towns. The town belonged to the Hanseatic League, and a powerful castle of the Teutonic Order was also located there. Archaeological excavations of the Order's castle have been taking place at intervals since 1878, but investigations of what we might term 'downtown' Viljandi did not begin until a hundred years later, in the 1980s (Tvauri 2000a; Haak 2007). Bone-working refuse and bone and antler artefacts have been recovered from both the Order's castle and from downtown, but only the more outstanding finds have tended to be published (e.g. Selirand 1982, Pl. 22: 4–8; Haak 2004, fig. 5; 2005, fig. 4: 1–3; 2007, fig. 2). Nonetheless, Viljandi's worked bone and zooarchaeological material has been discussed in a number of studies (e.g. Haak and Pärnamäe 2004; Haak 2007; Rannamäe 2010). Of particular note is the work of Arvi Haak (2007), who studied finds from the Order's castle and downtown areas, both within and beyond the town wall. A surprising result of this research was the recognition of a relatively large quantity of bone-working refuse in the Order's castle. Given the strictly regulated nature of medieval handicrafts, logic had suggested to Haak that bone-working would have been practiced in the town, but not in the castle (Haak 2007, 49).

Explaining the particular abundance of bone-working refuse in the Order's castle is equally interesting to the present author. Thus,

together with Arvi Haak and archaeozoologist Liina Maldre, we studied all the bone artefacts and bone-working refuse from the Order's castle held by the Viljandi Museum; this included the finds from the excavations directed by Arvi Haak in 2003 and 2004 (Haak 2004, 2005) as well as earlier finds, and Eve Rannamäe analysed faunal remains from the 2003–2004 excavations (Haak *et al.* 2012). I had already previously studied finds from the 1990–91 excavations directed by Heiki Valk in downtown Viljandi. These excavations focused on the neighbourhood of St John's church, and in Pikk Street (Valk 1991). More recently, I studied the finds from Andres Tvauri's 1999 excavations in the former suburb of Riga Gate (Tvauri 2000b).

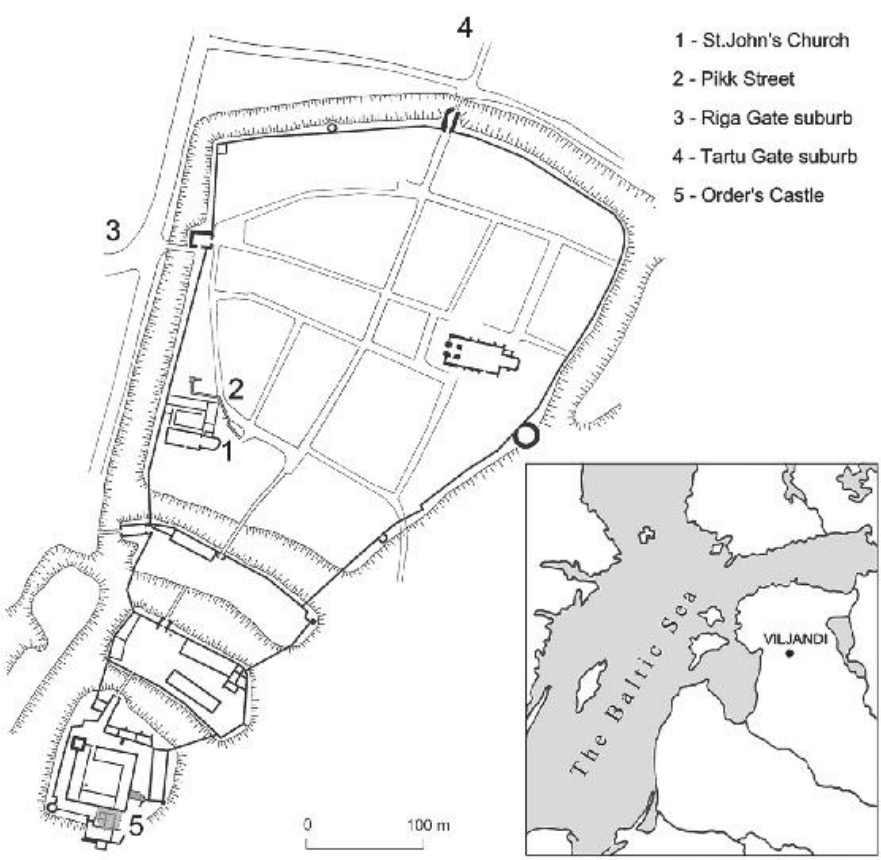

Figure 6.1: Medieval town plan of Viljandi. (After Haak 2007, fig. 2; Haak et al. *2012, fig. 1; ground plan by M. Konsa and A. Tvauri, excavations marked by A. Haak, map by K. Siitan).*

In this paper, I will compare the finds from excavations across the town (Figure 6.1), and will attempt to find answers to questions regarding the activities of bone-workers in medieval Viljandi. What kinds of artefacts were produced and used in the castle and the town? Who might have been the producers of these objects? Do the objects represent the products of household handicrafts, or of professional bone-workers? Were the bone artefacts made in a settled workshop or by itinerant bone-carvers?

Bone artefacts and bone-working refuse from downtown Viljandi

In Viljandi's downtown area, traces of bone-working occur primarily around St. John's church where, according to excavator Heiki Valk, the medieval town's first marketplace was probably located. Valk's 1990 excavations here were undertaken in a communications' trench, and from an excavation area of 165 sq m, a number of artefacts were recovered, including twenty bone artefacts and bone and antler refuse fragments. More generally, the finds from this region date to the time between the 13th century and the first half of the 14th century (Valk 1991, 23–24), though Arvi Haak and Erki Russow have recently disputed such an early context, primarily on the grounds of the abundance of late (16th-century) ceramics (Haak and Russow 2013). Of the bone artefacts, we should mention fragments of double composite combs, a gaming piece, two bone beads, a spindle whorl, toggle and two broken skates made from horse radii (Luik 1998, 87, fig. 69; 2000, 134, fig. 6). Only ten finds, primarily antler fragments, represent working refuse.

From the 1991 excavation in Pikk Street, only ten bone finds were recovered from an excavated area of *c*. 90 sq m. These included fragments of two combs, a small spindle whorl, a strapend, a pig canine decorated with oblique lines, a small number of bone ring fragments, and an antler plate with a grooved underside. Two antler fragments constitute the only working debris of note (Figure 6.2) (Luik 2008, 154, figs 1–2; 2009, fig. 47).

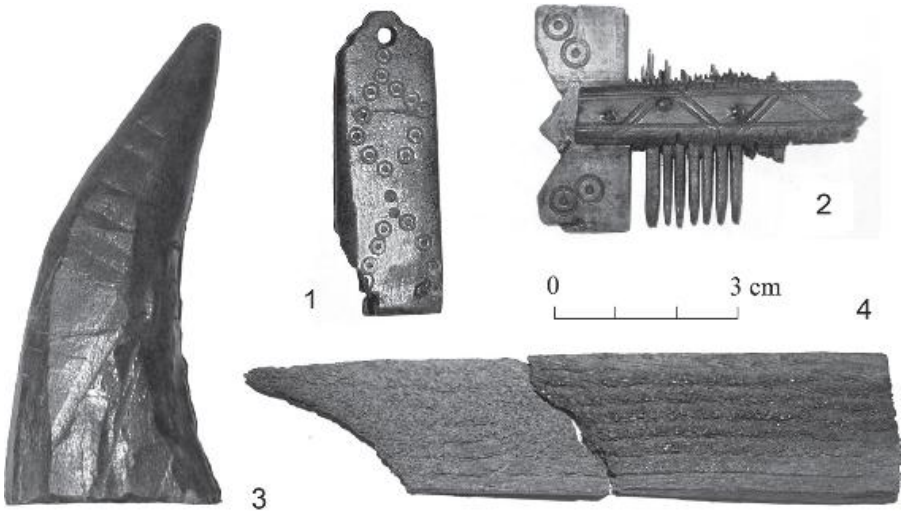

Figure 6.2: Finds from Pikk Street: (1) Strap tag, (2) Comb, (3) Antler tine with working traces, (4) Antler plate with grooved underside. (Photo by H. Luik).

Figure 6.3: Finds from the suburb at the Riga Gate: worked ribs and antler pieces. (Photo by H. Luik).

The bone finds from the 1999 investigations in the suburb of the Riga Gate (which excavated an area of *c*. 330 sq m), amount to about thirty pieces, primarily of bone-working refuse (Figure 6.3). Artefacts are represented only by a toggle and a fragment of a bone plate. Most of the finds from this area date to the period between the 14th and 16th centuries (Tvauri 2000b, 56). A half-worked fragment of elephant tusk has also been found in the neighbourhood, from the plot at 12 Kauba Street (Luik 2009, fig. 9).

Bone artefacts have been found on a number of further sites in the downtown area. For instance, a comb fragment and a number of turned chess pieces were found in excavations at the Franciscan monastery in 1980 and 1981 (Selirand 1981, Pl. XXVI: 4; 1982, 400, Pl. XXII: 4–8; Sander 2011, figs 14–18, 27), while a pottery stencil was found in Tvauri's excavations of a potter's workshop at 4 Pikk Street (Tvauri 2000c, figs 2–4), and a double-sided composite comb was found as a stray find near the town wall, sometime prior to 1934 (Luik 1998, 91, fig. 31). Bone-working refuse has been identified in the suburb at the Tartu Gate, from where a number of cattle phalanges and a gaming piece converted from a simple double-sided comb were also recovered (Figure 6.4) (Haak 2006, 73, fig. 3; 2007, 50, fig. 2; Luik 2008, 156–157, fig. 8).

Figure 6.4: Finds from the suburb at the Tartu Gate: two cattle phalanges and a gaming piece made from a comb fragment. (Haak 2006, fig. 3; photo by H. Helves).

Bone artefacts and bone-working refuse from the Order's castle in Viljandi

More bone artefacts and bone- and antler-working refuse have been found on the lands of the medieval castle, which seems to have been in use from the last third of the 13th century until the beginning of the 17th (Haak *et al.* 2012, 296–297). Finds recovered from the excavations of 2003 (in which areas of 25 sq m and 8 sq m were excavated) include bone artefacts and bone-working refuse, totalling about a hundred numbered finds. From the 2004 excavations (42 sq m) there were about fifty finds records (though since some find records relate to multiple objects, the total number is larger). A little more than a hundred finds have been recovered from earlier interventions. Finds from these earlier excavations are dominated by artefacts rather than bone-working refuse, no doubt partially because not all bones with traces of working were collected during these early excavations, and deposits were not sieved, meaning that smaller debris fragments (as well as small artefacts) may have passed unnoticed (Haak *et al.* 2012, 310ff.).

To date, about a hundred artefacts and more than 500 pieces of working refuse have been recovered from the excavations. The debris mostly consists of elk (*Alces alces*) antler fragments, though in three or four cases the fragments come from red deer (*Cervus elaphus*) antler (Figure 6.5) (Haak *et al.* 2012, fig. 24). Ten pieces of refuse originate from postcranial bone (cattle and sheep/goat bones are represented), and there are a number of simple bone artefacts in which the bone utilised has retained its original shape (Haak and Pärnamäe 2004, 79, fig. 2: 1; Haak *et al.* 2012, figs 19, 29). A fragmentarily preserved comb and a turned object, presumably a chess piece, are made of ivory, but were probably not locally made (Haak *et al.* 2012, figs 18: 12, 21: 3).

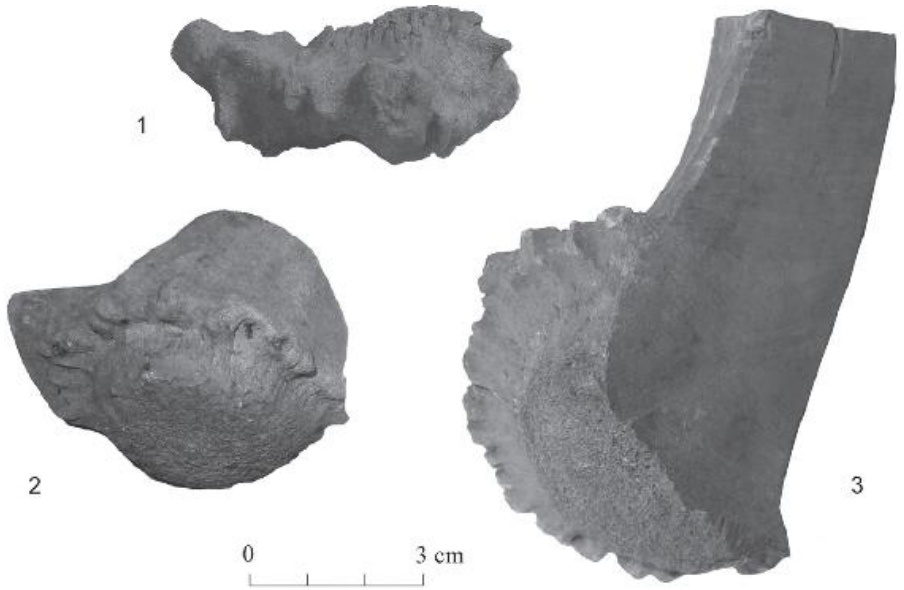

Figure 6.5: Finds from the Order's castle: (1) and (2) Red deer antler, (3) Elk antler. (Photo by H. Luik).

The largest group of bone artefacts consists of small decorative- and cover-plates of varying form, some of them ornamented, and some with grooves on the underside (which facilitated the plates adhesion to a larger composite artefact) (Figure 6.6: 1–2, 8–10) (Haak *et al.* 2012, figs 14–15). There are also handles and their details, comb fragments, styli, and a number of objects and fragments of unknown purpose (Haak and Pärnamäe 2004, 79, fig. 2: 3; Haak 2005, 98, fig. 4: 1–2; Haak *et al.* 2012, figs 21–23). Quite a large number of the artefacts were lathe-turned; these included tubules and handles, crossbow nuts, gaming pieces and chessmen (Figure 6.6: 3–4; Figure 6.7: 5–9) (Haak 2004, fig. 5: 1–2; 2005, 93, fig. 4: 3; Sander 2011, figs 23 ff.; Haak *et al.* 2012, figs 16, 18, 20). A number of dice were also found: two are common cuboid specimens, but two others have pyramidal ends (Figure 6.7: 1–4), paralleled at sites such as the Cēsis Order's castle (Haak 2004, 116; Haak and Pärnamäe 2004, 79).

As mentioned above, the largest component of the bone finds consists of working refuse from elk antler; only a few pieces definitely come from red deer antler (Figure 6.5) (Haak *et al.* 2012, figs 24–28). Larger pieces include burr fragments from shed antlers (rather than those cut or sawn from the skull of a butchered animal). There are also sawn antler slices, small plates and blanks prepared for further working. The finds from later excavations, in which all soil was carefully screened, include large quantities of small antler chips and shavings (Haak *et al.* 2012, figs 25–28). Working refuse also contains a few pieces that are suggestive of the intended finished artefact; there are strips of square cross-section, for example, which were probably meant for dice manufacture (Figure 6.8: 1–3). Small plates and flat strips probably represent the preparation of raw material for the production of decorative and cover-plates (Figure 6.8: 4) (Haak *et al.* 2012, fig. 27). A faceted, conical piece with a small hollow in its wider end may be the blank for a chess piece (Figure 6.7: 10), while there are also a number of pieces of debris that had clearly resulted from lathe-turning.

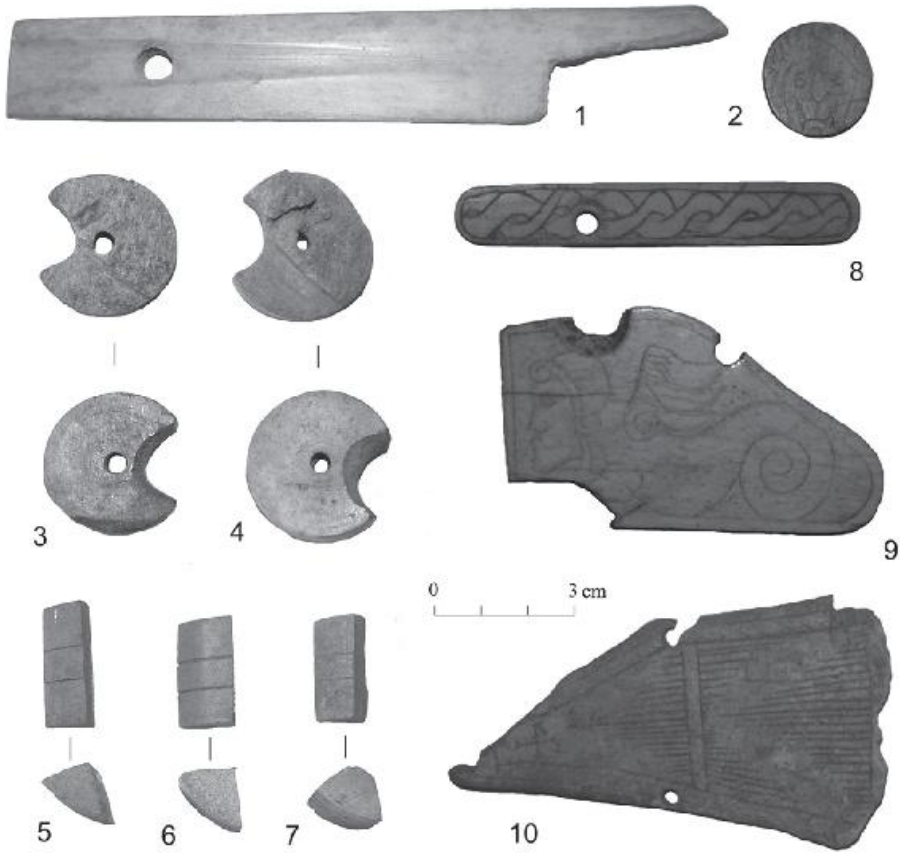

Figure 6.6: Finds from the Order's castle: (1) and (2), (8–10) Decorative antler plates, (3) and (4) Crossbow nuts, (5–7) Working debris. (Photo by H. Luik).

Three antler pieces are of particular note. Two come from deposits of late-13th– early 14th-century date, while the third piece was collected from disturbed strata (Haak *et al.* 2012; 312). These pieces seemed enigmatic at first: two sides of their roughly triangular cross-section were straight, while the third was convex, and marked with two parallel lines (Figure 6.6: 5–7). The pieces seem quite carefully finished, and this probably explains their inclusion in the list of finds as artefacts rather than as refuse. Considering the curvature of the convex side and the length of their straight edges, they do not quite form a quarter-cylinder, but rather a smaller segment not extending all the way to the centre of the cylinder. I suggest that they represent refuse from the manufacture of crossbow nuts. The production of such objects no doubt required the turning of an antler cylinder of the required thickness. Quite often, the side of a nut bears a pair of parallel lines, marking the width of the indentation made for the trigger (Figure 6.9: 3) (Rackevičius 1999, figs 3–4), while the completed nut has a concave cavity on one side, in order to accommodate the bowstring. This cavity was apparently made by first sawing a right-angled notch, and then finishing it into a more rounded concave form (Figure 6.9: 1). Measurements of the pieces found at Viljandi castle support the hypothesis that they could have been sawn from such crossbow nuts (Figure 6.9: 1–2). In this context, it should also be mentioned that three broken crossbow nuts are also known from Viljandi (Figure 6.6: 3–4) (Tvauri 2000a, fig. 2: 3; Haak *et al.* 2012, fig. 16: 1–3), while a further pierced antler piece may be a blank for the production of such a component, although the nut that could be carved out of it would be a little smaller than our other examples (Haak *et al.* 2012, 312, fig. 16: 4).

Figure 6.7: Finds from the Order's castle: (1–4) Dice, (5–9) Chesspiece, (10) Probable unfinished chesspiece. (Photo by H. Luik).

Figure 6.8: Working debris from the Order's castle: antler strips and plates. (Photo by H. Luik).

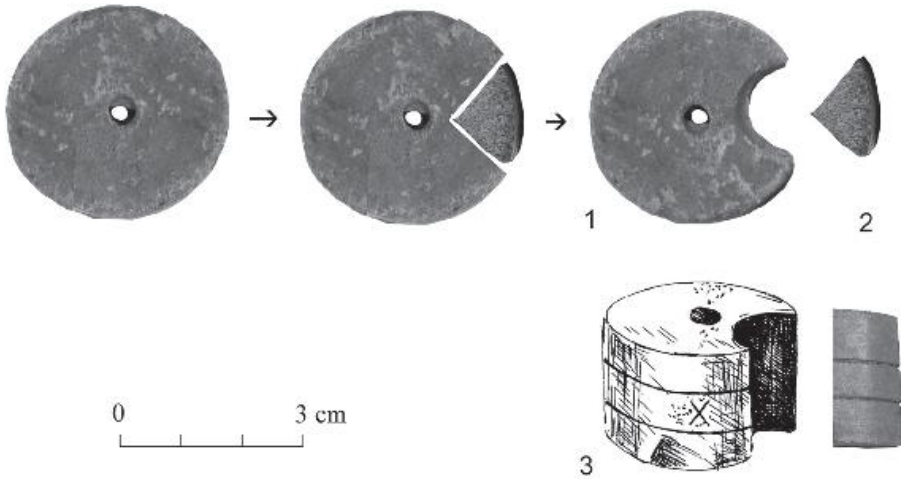

Figure 6.9: Evidence for the manufacture of crossbow nuts: (1) Crossbow nut from the Order's castle at Viljandi, (2) Working debris from the Order's castle at Viljandi, (3) Crossbow nut from the Bishop's castle at Otepää. (Photo and drawing by H. Luik).

Why does so much of the working refuse originate from the Order's castle?

These three small pieces of working refuse led me to think about why the majority of bone-working refuse from Viljandi comes from the Order's castle, rather than from the downtown area. The waste was probably produced by a master craftsperson(s), manufacturing antler details for crossbows. A workshop specialising in the manufacture or repair of weapons certainly seems appropriate in the context of a castle. Perhaps the craftsmen were not bone-workers first and foremost, but saw themselves primarily as crossbow-makers, and simply used bone and antler for making some of the details (MacGregor 1985, 160–161). Besides crossbow nuts, bone and antler plates were also used as supports for crossbows bolts (Rackevičius 1999, 2001, figs 1–2), and bone plates have been used to decorate the stocks of crossbows and guns (e.g. Röber 1994, fig. 7; Schlenker and Wahl 1994, fig. 1). It is conceivable that some of the bone and antler plates found in Viljandi were used for these purposes (Figure 6.6: 1, 8–10) (Tvauri 2000a, fig. 2: 1–2, 5; Haak *et al.* 2012, figs 14–15). In addition, amongst the bone-working debris from Viljandi castle we also find flat, unfinished antler plates, which could have been intended for use as supports for crossbows bolts (Figure 6.8: 4) (Haak *et al.* 2012, fig. 27).

Crossbows and weapon workshops in Estonia

The crossbow was brought into Livonia and Prussia by the military orders in the thirteenth century; according to Sven Ekdahl (1998), the Teutonic Order ran its own workshops for the production of crossbows. These were located in the great castles and larger towns in the Order's lands. Is it possible to find traces of crossbow workshops from the archaeological material of other castles or towns in Estonia and elsewhere?

Only a few crossbow nuts have been found in Estonia; beyond Viljandi examples are known from Tartu, and from the Bishop's Castle at Otepää (SE Estonia). The nut from Tartu is a completed object, but the example from Otepää is unfinished, as the 'trigger' indentation is absent (Figure 6.9: 3) (Haak *et al.* 2012, 311–312). From Otepää we

also have an antler blank, probably intended for use in the manufacture of a crossbow nut (Luik 2009, fig. 27: 2). It is germane to briefly detail the context of the Otepää finds. The Bishop's Castle at Otepää was in use between the 13th and 14th/15th centuries (Mäesalu 2010; Mäll 2010). It is outstanding among Estonia's medieval castles for the abundance of elk antler, and bone tools and debris, as well as a number of lathe-turned objects (Luik 2009, figs 15: 1–9, 27). Bone-working was then clearly practiced in the castle, and crossbow details were amongst the products of this craft.

From the Bishop's castle in Lihula (western Estonia), only a few bone items are known, and a much greater quantity of bone tools and waste is known from the small market town with which it is associated (Luik 2002). Bone artefacts have also been found at the Order's castle in Rakvere (northern Estonia). Although some of these have been published (Alttoa *et al*. 1987, Pl. XXIII), the bone finds from Rakvere have not yet been thoroughly studied, as is the case for the worked-bone material from many of Estonia's medieval castles.

Crossbow and weapon workshops beyond Estonia

In Vilnius, Lithuania, supports for crossbow bolts have been found both from the Upper and Lower Castle, but the crossbow workshops were located in the town of Vilnius itself. Crossbow nuts, antler and bone plates, and working refuse have been found from two plots, both located in the same urban quarter. The wooden buildings from which these finds were recovered have been dated to the period between the second half of the 14th century, and the first half of the 15th. According to Gintautas Rackevičius, these workshops both produced new crossbows, and repaired damaged examples, with their primary clients being the grand dukes residing at Vilnius Castle (Rackevičius 1999, 182, figs 2–4; 2001, 381, fig. 2).

Further afield, evidence for crossbow manufacture is known from the Archbishop's Palace in Trondheim, Norway. In brief, one of the buildings here was interpreted as a weapon workshop associated with the specialised manufacture and repair of crossbow parts. The building is dated to the first third of the 16th century (Nordeide 2000, 76, 204). The interpretation of this building as an arms workshop derives from the finds recovered around the building, including a large assemblage of crossbow nuts, bolt groove mounts and other

antler strips, as well as several crossbow bolt heads (Nordeide 2000, 77, 84, 114; Saunders 2002, 95). Only a limited range of types of crossbow parts was represented in the finds assemblage – namely antler trigger mechanisms and groove mounts – but no identifiable wooden or metal crossbow pieces were recovered. The workshop probably did not produce complete crossbows, but rather specialised in the production of the bone trigger mechanism and the antler bolt grooves (Nordeide 2000, 114). In the opinion of the investigators, this production could be seen as an expression of the archbishop's new military privileges and responsibilities. By establishing a weapon workshop in the palace, the archbishop maintained a degree of control over armament production, and guaranteed a supply of crossbows to the soldiers in his service (Nordeide 2000, 114; Saunders 2002, 96).

Crossbow nuts and mounts have also been found in excavation at the castle of Guetrat, near Salzburg, Austria, together with significant quantities of antler-working waste (Lang 2010, 88–90, figs 2, 8, 10–15). This castle was built by order of the archbishop of Salzburg, and was in use during the 13th century. Felix Lang, who investigated the bone material from the site, has argued that the crossbow nuts could not have been produced locally, given the absence of lathe-turned waste. However, he also suggests that a number of mounts which could represent parts of crossbows, may be unfinished (Lang 2010, 89, 92). It is therefore possible that they were connected with the production or repair of crossbows. Lang concludes that the production waste probably relates to the work of a craftsman who resided in Salzburg or Hallein, but who was itinerant for part of the year, and who worked for a period in the castle at Guetrat (Lang 2010, 93–94).

These brief case studies sketch out some of the ways by which the production and repair of weaponry may have been organised. Such workshops could be located in the seats of local power, such as castles or palaces, but could also be found in towns. Nonetheless, it is clear that these workshops were linked with the presence of those who held military power, and who had a demand for weapons to equip their troops or retinue.

Production or repair?

The above review gives us some context in which to interpret the material from Viljandi. Nonetheless, questions remain. Could the

castle have hosted a workshop for the production of crossbows, or was the focus rather on repair and the replacement of broken details?

In the thirteenth century important improvements were made to the crossbow: the wooden bow began to be replaced by the more effective composite 'horn-layer bow', made of goat horn, sinew, fishbone plates and strips of wood (Ekhdal 1998). This has implications for our interpretation of the Viljandi collections; is there evidence for the working of horn as well as antler?

Among the faunal remains from the castle, skull fragments of cattle and sheep/goat are extremely numerous, but horn cores are almost entirely absent. It is possible that horn was used for making composite crossbows, and the missing horncores relate to this use of the material (Haak *et al.* 2012, 300 ff., tab. 1, figs 4, 8). Horn, being a keratin-based material, is not usually preserved in archaeological deposits, so the absence of horn details and artefacts is not surprising. Nonetheless, it is notable that (osseous) horncores bearing working traces are also very rare amongst the bone-working waste from the castle (Haak *et al.* 2012, 322–323, fig. 30). If horn was used by the bone-workers or arms producers in the castle, then any associated horncores must have been deposited elsewhere, or else the horn was imported to the workshop as semi-prepared sheets (Haak *et al.* 2012, 329). As it stands, however, this is simply speculation, as the archaeological data from the castle cannot be used to unambiguously demonstrate the production of 'horn-layer crossbows' onsite.

What we do have is evidence for broken crossbow nuts. It is conceivable that the antler nut would be one of the elements of a crossbow that might easily break and need to be replaced, and all three nuts from Viljandi castle are broken in the same place (Figure 6.6: 3–4) (Haak *et al.* 2012, fig. 16: 1–3). It is notable that crossbow nuts from other sites are also frequently broken (Rackevičius 1999, figs 2–4; Lang 2010, fig. 2).

In addition to the bone items, the finds from Viljandi castle included several small iron rings (1.2–1.8 cm in diameter), which may relate to the repair of mail (Haak *et al.* 2012, 329). In this respect, it is interesting to note that concentrations of metal strips, plates and rivets were found at the workshop at the Archbishop's Palace in Trondheim, and it has consequently been suggested that brigandine armour was repaired here (Saunders 2002, 95). There is thus a precedent for the

production or repair of crossbow components being associated with other martial crafts.

Given the number of crossbow details known from Viljandi castle, it seems probable that the site saw the repair of arms and armour, rather than production itself. However, it must be remembered that the 19th- and early- 20th-century investigations here recovered only large pieces of bone and antler, such that any evidence for the preparation of crossbow details in these excavations is likely to have been overlooked (Haak *et al.* 2012, 321).

The accumulation of a large quantity of production waste, and the standardised use of material could be regarded as indicators of craft specialisation (Christophersen 1980a, 223). The castle's 500 fragments of refuse are significant relative to the quantity of waste found from downtown Viljandi, but by way of comparison, one might note that Axel Christophersen interpreted a cesspit in Lund containing over 800 fragments of antler scrap as the result of a month or six weeks' work by an itinerant craftsman (Christophersen 1980b, 164). The relative longevity of activity at the castle must also be taken into account, and at least some of the ornamented bone and antler plates relate to later firearms (Figure 6.6: 8–10) (Kree 2011, 33–35, Pl. XXV–XXVI; Haak *et al.* 2012, fig. 15). It is unclear whether these plates were locally made, but this cannot be ruled out. Metal firearm components (such as wheel- and flintlock details; gun barrels) have been found in significant numbers, and most examples may be dated to between the 15th century and the beginning of the 17th (Kree 2011, 17–33, Pl. IX–XX).

In sum, given its context, it seems likely that production in the castle's bone workshop was commissioned according to the requirements of the Order holding the castle, rather than being oriented toward market production.

Raw material acquisition

Since Viljandi was a very small town, the castle's demand for weapon details may have offered a more stable income than did the town's demand for bone artefacts. It is also possible that the castle offered the benefit of organised raw material (antler) purveyance. Since hunting was a privilege of the upper classes, it may be assumed that the antlers of hunted animals tended to reach the castle, rather than

elsewhere in Viljandi. The use of shed antlers may also have been regulated. An example of just such an arrangement can be found in English written sources: in the *Close Rolls* of Henry III (1225), a certain Hasculf Adhelhakeston is ordered to hand over all antler beams he finds in the forest to a crossbow-maker known as Philip Convers, for the manufacture of crossbow nuts (MacGregor 1985, 160–161). In contrast, Olaus Magnus (1996/1998, 872) states that crossbow-makers procured antler for details by bartering. The occurrence of red deer antler at the Order's castle in Viljandi may also suggest the regulated purveyance of material; given that red deer did not live wild in Estonia at that time (Paaver 1965, 235 ff., fig. 37: IV), antler was probably brought to the castle specifically as a raw material for crafts. The suggestion is supported by the fact that amongst the faunal remains from the castle, cervids are primarily represented by shed antlers, while postcranial remains of elk and red deer are almost nonexistent (Haak *et al.* 2012, 308–309, 329, tab. 1). Similarly, a significant number of cattle and sheep/goat skull fragments lack horncores, which may also speak to an organised approach to the procurement of raw materials. It seems then, that antler was brought to the castle as a raw material, but whether it was carried there by the bone-worker, or by another party is unclear.

Gaming pieces in the castle

Another craft suggested by the bone-working refuse at the castle is the manufacture of gaming pieces and dice. Gambling and board games were well-suited as pastimes for warriors and members of the military, and it is possible that the demand for this operation was, like the weaponry, focused on the castle (Svensson 1995). A conical antler object with traces of evidence for turning may be a blank intended for use in the manufacture of a chess piece (Figure 6.7: 10), and another example (Sander 2011, 54, fig. 44; Haak *et al.* 2012, fig. 18: 11) is presumably an unfinished chess piece. It is, however, questionable whether complete sets of chess pieces were produced in the castle. It seems more likely that these pieces are the result of a bone-worker equipped with a lathe attempting to manufacture individual examples, perhaps in order to replace a lost or broken example. Finally, amongst this production waste, one might also note several antler strips of square cross-section, suitable for the manufacture of dice (Figure 6.8).

Only a small number of chess pieces and dice could be dated on stratigraphic grounds. The only dateable die comes from a layer dated to the period between the end of the 13th century and the beginning of the 14th century, and is thus contemporary with the evidence for the production of crossbow nuts (Haak *et al.* 2012, 314–315). Conversely, three chess pieces come from a phase dating to the period between the second half of the 14th century and the beginning of the 16th, and are thus representative of activity at a later date. Two unfinished (i.e. certainly locally-made) chess pieces could not be dated according to their find context. However, it seems likely that the same manufacturers used the lathe for making both the crossbow nuts, chess pieces and other turned objects, such as handles (Haak *et al.* 2012, fig. 20).

Bone-workers in the town and suburbs of Viljandi

Bone artefacts and bone-working debris from Viljandi's town area have a wide spatial and chronological distribution. Few items allow us to draw definitive conclusions about bone-working activity in Viljandi itself, as many finished items (such as combs and chess pieces) may have arrived in the town complete, while a number of rather rudimentary objects, such as toggles and skates, could even have been made by the children who used them (MacGregor *et al.* 1999, 2005; Luik 2000, 143). Nonetheless, a small number of objects are intriguing, particularly amongst the combs. A doublesided composite comb from Pikk Street (Figure 6.2: 2) appears to have been repaired, as its endplate and one of the toothplates have been replaced (Luik 2008, 153–154, figs 1–2). Although the new toothplate appears to have been manufactured with rather less care than the remaining original plate (having rather irregular and uneven teeth), it is nonetheless clear that the repair of a complex item such as a comb, demanded a certain skillset and knowledge base. Of course, one cannot be certain that the comb was repaired in situ or close by, particularly as it seems to have seen some wear after its repair. Nonetheless, it is possible, and perhaps likely that the comb was repaired in Viljandi. Another reworked comb comes from the suburban area of the Tartu Gate (Figure 6.4), though in this case we need not invoke a specialist or skilled hand, as it simply consists of a round gaming piece cut from the broken remains of a comb, which

was probably by this point lacking most of its teeth (Luik 2008, 156–157).

The total quantity of debris from the town area inside the town walls is very small, and does not suggest the activities of a professional, permanently settled bone-worker. Such limited quantities of waste are better interpreted as the result of domestic crafts (Christophersen 1980a, 223). Of course, the possibility remains that archaeological excavations in the downtown area have simply failed to alight on the majority of production material preserved beneath streetlevel. The most substantial collections of bone-working waste have been found in the suburbs outside the Tartu and Riga Gates, and it might be concluded that (at least during some periods) bone-working was practised in these suburban areas, rather than in the town centre (Haak 2007, 50). Nonetheless, since only small areas of Viljandi have been investigated to date, it is possible that this distribution is incidental rather than meaningful. Nevertheless, it is notable that similar patterns are known from elsewhere in the towns of the Baltic region. In Tallinn, Estonia's largest medieval town, the greatest quantities of bone-working waste come from the suburbs outside the town walls (Luik and Maldre 2003). The same situation has been observed in Tartu (Haak 2007, 50). It is then, not premature to point out that this phenomenon also appears to characterise medieval Viljandi.

In detail, the greatest quantity of pieces of bone-working waste – 30 pieces – comes from the suburb at the Riga Gate. Though this is a small collection, these waste pieces are characterised by a certain standardisation of form and material. Most pieces are thin, flat plates, cut from ribs and elk antler (Figure 6.3), most likely representing blanks for the manufacture of decorative cover-plates. A fragment of a small bone plate with inscribed letters is also known from the same site. It is possible that this standardisation indicates the activities of a skilled bone-worker (Christophersen 1980a, 224). In this respect, it is notable that the remains of only one building, measuring 4 × 8 m, was recovered from the excavated area of 330 sq m. Most of the find material from this area comes from the period between the 14th and 16th centuries, and it appears that a forge and tavern were located there (Tvauri 2000b, 56), though it is possible that the area also housed the workshop of a bone-worker. Given the small quantities of

waste, this may not have been a full-time occupation, and it is conceivable that bone-working was an additional occupation of a craftsman working at the forge. In this regard, it is interesting to note that Arvi Haak (2007, 50) has suggested that bone-working could similarly have been a secondary occupation for a resident of the Tartu Gate suburb. Bone-working may fit together well with blacksmithing, since both bone and antler plates are suitable for making knife handles; perhaps they produced such composite objects from start to finish. However, most plates recovered from the investigated area appear to be too thin for such a use.

Given the small quantities of bone-working waste recovered from the Riga Gate suburb (e.g. Christophersen 1980a, 223–224; Luik and Maldre 2003, 30–31), it is also possible that an itinerant bone-worker stayed for a spell in the area. The tavern and forge were both located close to the road to Riga – an important centre in medieval Livonia – so this area may have been a favourable place for an itinerant craftsman to spend some time. A fragment of worked elephant tusk found close to the Riga Gate (Luik 2009, fig. 9), may speak of the actions of a professional bone-carver, since ivory is an uncommon material in Estonia. However, this object is of a later date than other bone-working refuse in the area, and may belong to the period between the 17th and 19th centuries (Andres Tvauri – pers. comm.).

Comparanda for Viljandi's bone artefacts are known from a number of medieval towns in Estonia, but only the finds from excavations in Lihula and Tallinn have been analysed precisely (Luik 2002; Luik and Maldre 2003). Here, as in urban Viljandi, the collections are dominated by tools and other everyday artefacts such as needles, spindle whorls, handles, combs, toggles, and skates (Luik 2002, figs 2–19; Luik and Maldre 2003, figs 3–13; Haak *et al.* 2012, 327). Thus, Viljandi's bone artefacts are well paralleled at medieval sites in the region, but we await further excavation and research ahead of more detailed discussion of the organisation of bone-working in Estonian and Livonian medieval towns.

Conclusions

The bone and antler objects recovered in downtown Viljandi consist primarily of common tools and everyday objects, though a number of chess pieces found in this area no doubt relate to the Franciscan

monastery. The assemblage from Viljandi castle consists of a large number of cover-plates for weaponry, as well as chess and other gaming pieces, which could of course be connected with the activities of soldiers in the castle. However, ordinary bone objects (combs, handles etc.) are also found from the castle, suggesting that the inhabitants of the castle also needed such items. Some antler-working waste from the castle seems to relate to the production of crossbow parts; although one cannot exclude the possibility that complete crossbows were produced at the castle, it seems more probable that what we are looking at is armoury repair. Close to the castle, a number of skilled bone-workers may have worked in the suburbs of Viljandi. The relatively small quantities of waste indicate that bone-working may have been something of a secondary occupation, or that the waste relates to the activities of itinerant craftsmen. Common methods of antler-working (chopping, sawing, and cutting) characterise production refuse both in the castle and downtown, but while in the castle there are scarce traces of artefact turning, such evidence is absent in the downtown material known to us. At the present state of investigations it is not possible to say whether the same masters who manufactured artefacts in the castle also made and sold their products in the downtown, or whether other craftsmen worked there. However, the find material from Viljandi demonstrates the activities of skilled bone-workers both in the town and castle, and offers considerable potential for social and economic analysis as further material comes to light.

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Chapter 7

Consumers and artisans. Marketing amber and jet in the early medieval British Isles

Carolyn Coulter

> 'If you ask its value as an ornament, jet is black and brilliant; if its nature, water burns it and it is extinguished by oil; if its power, being heated by rubbing, it holds things applied to it, like amber; if its use, it is an excellent remedy for dropsy.'
>
> Alexander Neckam, *De Naturis Rerum* xcii.xiv, late twelfth century (Wright 1863, 181; trans. in Benjamin 1895, 126)

Jet and amber were in earliest times considered elite commodities. Their worth and attributed properties were much debated among the ancients; of amber Pliny wrote in the first century, 'its rating among luxuries is so high that a human figurine, however small, is more expensive than a number of human beings, alive and in good health' (Eichholz 1962, 201, Natural History 36.34). By the early medieval period amber and jet appear to have been considerably less exclusive than this. Significant quantities of production waste occur from the ninth century at trading centres across Northwest Europe, from Haithabu and Kaupang in the Baltic region to Dublin and York in the British Isles (Figure 7.1) (Ulbricht 1990; Mainman and Rogers 2000; Resi 2000; Gerds 2001; Bodfeldt and Brinch Madsen 1991; Harvey forthcoming). This paper represents results from my doctoral research into cross-cultural relations between England and Northwest Europe from a study of early medieval stone commodities (Coulter forthcoming). The discussion here focuses on the evidence for amber- and jet-working in the British Isles, and seeks to answer the following

questions, who were the artisans of amber and jet? Were they itinerant workers, also working in other materials? To whom were they marketing their products? Why is there a demand for these gemstones at this time? And who ultimately controlled this trade?

Figure 7.1: Amber and jet in early medieval Northwest Europe (deposits of Baltic amber occur in regions above the dotted line).

Method

The early medieval remains of amber- and jet-working represent what has been described as a 'producer, consumer and producer-product interface' (Jones 1993 cited in Caple 2006, 16). This relationship between the archaeological record and the actors involved in the production and use of an artefact is illustrated in Figure 7.2. Within this object biography, amber and jet were gathered and transported before being worked into a finished product for use. In order to extract information about the consumers and artisans in this process, a simple model has been devised for this paper (Figure 7.3). I begin with the sources for jet and amber, and chronologically review the use of these two gemstones in the early medieval British Isles. The production waste and finds from York and Dublin are then detailed in a case study analysis. These two sites have been extensively excavated since the 1960s and have produced prime datasets for the investigation of amber and jet craft-workers and their consumers. Figure 7.3 outlines the method of analysis employed to this end, standardization of products is assessed initially to determine the degree of craft specialization and whether artisans were professionals. The use of spatial distribution assists further in determining whether artisans worked independently or in nucleated workshops (Costin 1991, 10, 18, 32), while comparison with other finds permits an examination of manufacturing technique and cultural affiliations, to ascertain if craft-workers of amber and jet also worked in bone, for instance, or if they imitated high-status products. Finally, this paper will evaluate the written sources and historical context to explain the demand for, and changing use of amber and jet in the early medieval British Isles.

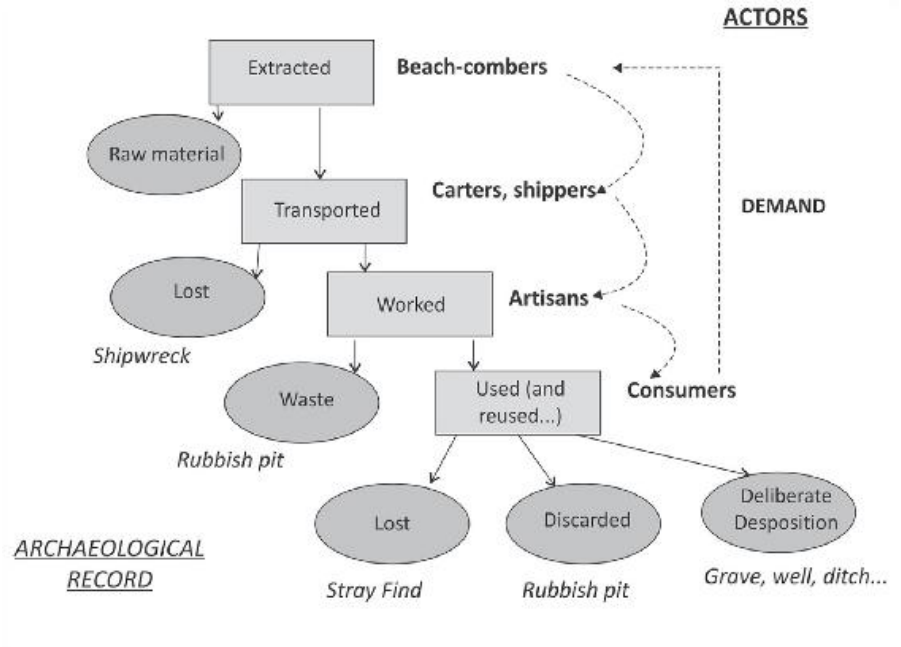

Figure 7.2: Object biography of amber and jet finds in relation to the archaeological record and the people involved in production.

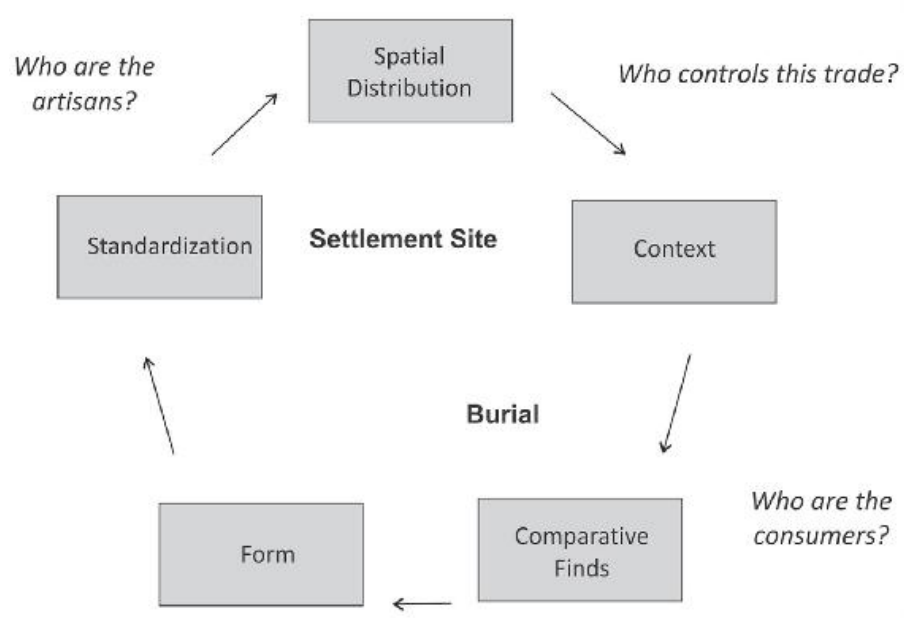

Figure 7.3: Model for the interpretation of amber and jet finds.

Sources and chronological overview

Often described as gemstones, amber and jet are in fact forms of fossilized vegetable matter. The most common variety of amber can be found in the Baltic region, formed under the seabed from the resin of ancient pine forests. The largest deposits occur about the Samland Peninsula and in the Gulf of Danzig. Smaller amounts sometimes wash up on the Dutch coast and along the shores of eastern England (Beck 1970, 8) (Figure 7.1). These latter finds may well have sufficed for the English market in amber before the ninth century; even as late as the early twentieth century, the amber found on the east coast of England was deemed sufficient 'to supply the demands of the tourist' (Lethbridge 1931, 45). The blackest type of jet is also formed under the sea, not from tree resin, but from the remains of fossilized wood. A form of soft brown coal, known as lignite, can closely resemble jet and was sometimes used – particularly in Northern Ireland where deposits are found – for the manufacture of arm-rings (Figure 7.4). Historically, however, the best quality jet for ornaments has come from Whitby in northern England (Muller and Muller 2009) (Figure 7.1).

The Roman author Solinus was the first to praise English jet in the third century AD (Mommsen 1895, 102). At that time both jet and amber were used by professional artisans to create a range of products, primarily for feminine adornment with amber beads and with hairpins and ornamented bracelets of jet (Johns 1996, 15–16, 100, 120–21; Allason-Jones 1996). The use of these two gemstones prevailed into the early and mid Anglo-Saxon period (AD 400–900), occurring for the most part in the archaeological record as grave-goods. There is a marked difference between these objects and those that were used in the centuries of Roman occupation. Now the amber beads are large and crudely-worked. Jet artefacts, meanwhile, are rare and commonly comprise reworked Roman objects, such as the cuboid bead discovered at West Stow (West 1985, fig. 275.1). This had originally been the head of a hairpin, since sawn off and pierced to serve as a bead sometime in the fifth to seventh century. Beads predominate in the assemblages of both amber and jet at this time in the British Isles (see Figure 7.4). Following the Viking invasions of the eighth and ninth centuries, jet-working in the north of England appears to experience a renaissance. Gaming pieces and pendants

display a high degree of craftsmanship. Large, polished objects of jet are also found from this period in graves in Norway (Resi 2005). These reveal the same level of skill as those from the British Isles. Simultaneously, new fashions in amber-working emerge. Figure 7.4 depicts this explosion of new forms. The phenomenon is not confined to England and Ireland either. These cultural innovations are reflected in the material culture of trading centres across Northwest Europe. The following section turns now to the evidence from York and Dublin to understand the people involved in this process.

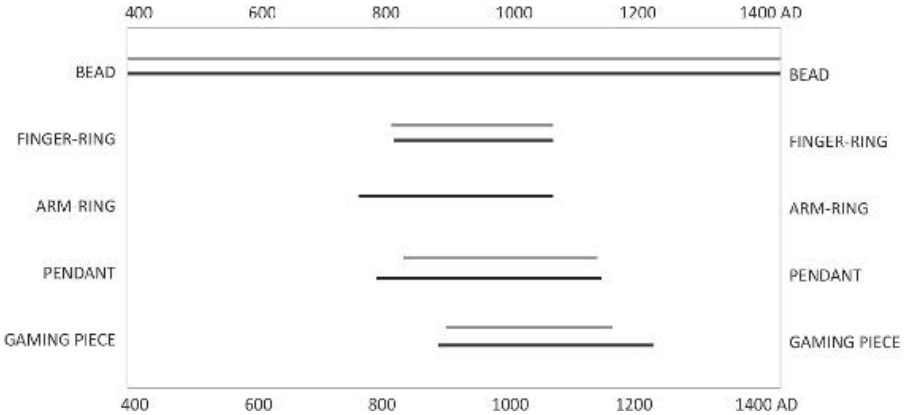

Figure 7.4: Chronological overview of the main forms of amber (grey line) and jet and jet-like material (black line) found in the British Isles, AD 400–1400.

Case studies, Dublin and York

The tenth century was a period of economic growth with the development of new trade networks in the North Sea region. Archaeological excavations reveal that Dublin and York were part of this network and shared in the rise of prosperity (Hudson 1999, 42). Dublin was a new settlement, established on the east coast of Ireland by Norse immigrants and traders (see Figure 7.1). The results of a twenty-year excavation project led by Breandán Ó Ríordáin and Patrick Wallace of the National Museum of Ireland show that Dublin was the site of intensive occupation and craft-working from the tenth to thirteenth centuries (Wallace 1985; 1988). York, on the other hand, had been an important Roman town and later, an ecclesiastical and commercial centre in the mid Anglo-Saxon period (AD 700–900). The nature of the archaeological evidence changes in the late ninth and tenth centuries with the redevelopment of the site under Scandinavian influence (Hall 1994, 31–33). The most significant material for illustrating this change comes from the five-year excavation directed by Richard Hall at 16–22 Coppergate. Prior to this there is only limited data for jet-working, while amber may not have been worked at all (Rogers 1993, 1317, 1378–1379). From the tenth century, large quantities of amber products and waste occur alongside fragments of jet. In York this amounts to over 300 finds of amber, and in Dublin to almost 4,000 amber finds, an assemblage comparable in size to those found at Haithabu and Groß Strömkendorf in northern Germany (Harvey forthcoming; Ulbricht 1990; Gerds 2001) (Figure 7.1). Although the number of finds at York and Dublin may be sufficient to suggest that amber was imported from the Baltic rather than from the east coast of England (Hall 1994, 85), the clearest indication of this amber's origin lies in the range of finished products. Comprising finger-rings and pendants, this new range of objects is distinctly North European in character, mirroring types made in the trading centres of the Baltic, at Haithabu, Groß Strömkendorf and Ribe. Amber-working was practised at these three Continental sites from the ninth century, before such products appear in Dublin and York. It therefore seems most probable that after trade routes had been extended to include the British Isles in the tenth century, traders imported amber from the Baltic, perhaps directly from an entrepôt such as Haithabu.

This new pattern of cultural affiliations to emerge from the tenth century is apparent elsewhere in the British Isles. Whilst no other site in England has to date produced the same quantities of amber as York, the few settlements that have yielded amber finds for this period all lie within the Danelaw, the northern and eastern regions of England under Scandinavian influence (see for instance Mann 1982; Evans and Tomlinson 1992; Stamper and Croft 2000; Wade-Martins 2000). Jet-working, meanwhile, remained largely a craft indigenous to the British Isles. The jet fingerrings that appear in both York and Dublin at this time are most probably a cultural innovation, inspired by the amber forms imported from the North Sea realms.

Did artisans in jet and amber work bone as well?

The finger-ring proves especially useful here for detecting whether artisans worked in both amber and jet. The evidence of tooling marks and the marked standardization achieved in producing this object – both in Dublin and in York – strongly suggest that the same craft-worker creating objects of amber, could – and did – make objects of jet as well. This is hardly surprising: jet and amber are soft materials, formed by a similar process (see Sources and Chronological Overview above), and the same tools are used to work both. The same set of tools – knife, awl and lathe – are also used for bone-working; it has therefore been suggested that amber- and jet-working were practised as subsidiary crafts by artisans of bone. This certainly seems to have been the case in eleventh-century London, where waste deposits of crudely-worked rings of shale have been discovered alongside rings made from cattle metatarsals (Pritchard 1991, 123). The resemblance in design between many gaming counters and dice of bone, amber and jet from the later medieval period further substantiates this theory. These gaming pieces, however, occur as single finds, and their rarity implies that they may have been individually commissioned, rather than mass-produced (Coulter forthcoming).

The only other object that appears in all three materials, and thereby permits direct comparison of manufacturing technique, is the finger-ring. The finger-rings of amber and jet at Dublin and York were finished to a high standard, D-shaped in profile and beautifully polished. By contrast, the few bone rings discovered at these sites had been roughly sawn, leaving the final product irregular in form and

rectangular in profile (MacGregor *et al.* 1999, 1922, 1943; Coulter forthcoming). More significantly, the preponderance of waste material from bone-working in Dublin came from excavations on the Dublin High Street, while jet and amber debris predominated in a plot at Fishamble Street (Wallace 1988, 159). A similar spatial distinction between jet and amber waste, and debris from bone-working can also be discerned from the excavations in York: whilst bone-working was fairly widespread, perhaps as a household craft, debris from amber- and jet-working was concentrated in deposits from 16–22 Coppergate with further amber waste at Clifford Street (Mainman and Rogers 2004, 470–75). The craft-workers of Dublin and York, it would seem, specialised in different materials.

Settled or itinerant artisans?

The striking similarity between bone combs from sites across Northwest Europe at this time has led to the supposition that comb-makers may have been itinerant craft-workers (Ambrosiani 1981, 40). The same conjecture may well be applied to artisans of amber and jet, for their products at York and Dublin display a remarkable degree of uniformity with the objects that occur at other trading sites in Northern Europe. Yet, within the range of artefacts produced across these settlements, there exists a certain creativity and tailoring to local demands, unique to each site. In effect, each assemblage possesses its own distinctive character. At Kaupang in Norway, for instance, the amber figurine of a woman has been discovered (Blindheim 1969, 17); at Hedeby, Thor's hammers and axes number among the finds of amber (Ulbricht 1990, 116, 120). None of these characteristically Scandinavian symbols has been discovered among the amber and jet objects of Dublin and York. Instead deposits in Dublin have yielded two small amber cross pendants. To date the closest parallels to this amber form come from Eastern Europe (Krumphanzlová 1992, 354). In York cross pendants are made of jet and decorated with a ring-and-dot motif. These jet crosses may not have been manufactured in York, but at the monastic site of Whitby where waste debris has been discovered (Peers and Radford 1943, 68) (Figure 7.5). Finds of jet waste are limited within York itself. Several pieces were recovered from 16–22 Coppergate with two further fragments from the Cathedral. This was sufficient evidence for the excavator to posit the

presence of a jet workshop (Mainman and Rogers 2004, 474). Jet- and amber-working may never have been a full-time professional craft during the tenth to eleventh centuries. Nevertheless, the successive layers of waste and unfinished products that have been recovered from York and Dublin imply that artisans were residents with their own workshop areas. Indeed, at one particular plot in Fishamble Street, Dublin, the concentration of amber finds indicates that whether these artisans were originally of Scandinavian extraction or not, theirs was a family business spanning several generations (Wallace 1985, 136; Harvey forthcoming). But for whom – and for what purpose – did they produce these objects? The following sections will now examine the written record and historical context to answer this question.

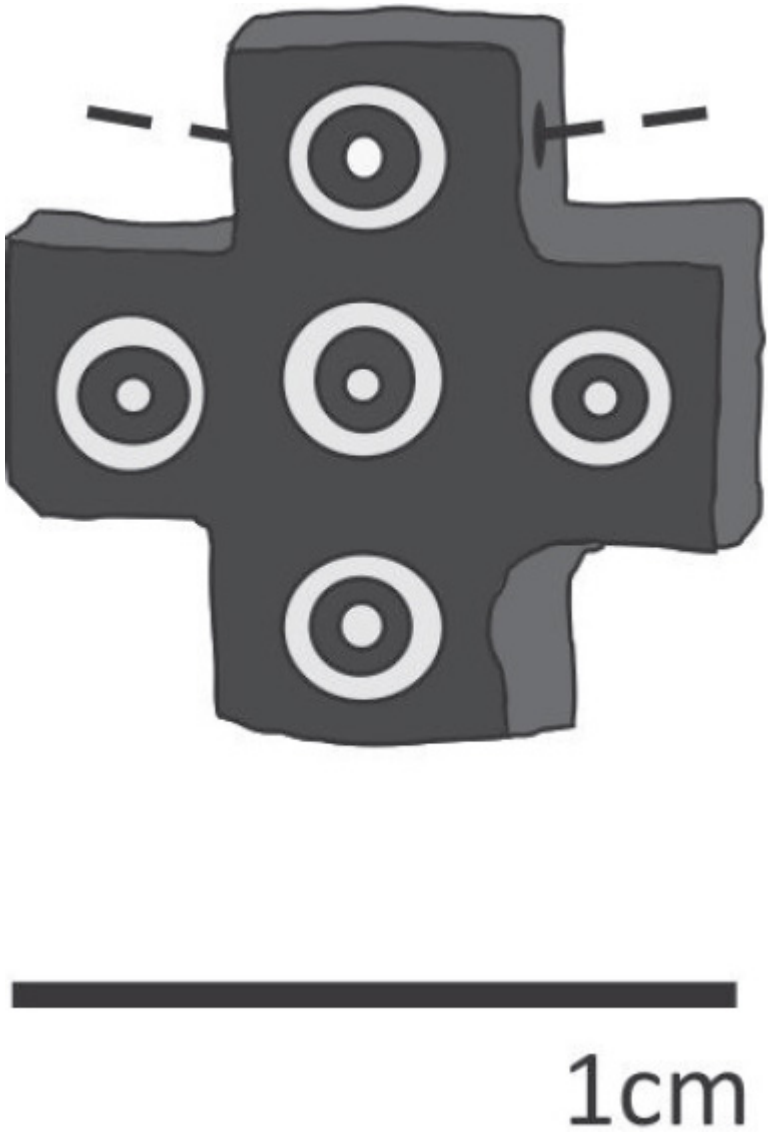

Figure 7.5: Jet cruciform pendant. Type found at York and Whitby. Single finds of this type have also been discovered at Winchester (England), Dublin (Ireland), Bergen (Norway), and Herjolfsnes (Greenland) (Drawing by C. Coulter).

Amber and jet in the written record

The authors of the Classical World frequently referred to amber and jet. Curiously, writers of the early Middle Ages rarely mention either. Amber and jet are listed in Latin glossaries of the period, while Bede lauds English jet in the eighth century as being of excellent quality (Sherley-Price and Farmer 1990, 45, Ecclesiastical History ch. 1). By contrast, amber was vilified on the Continent. The sixth-century archbishop of Arles, Caesarius, reviled the wearing of amulets of amber and herbs. The same strictures recur in the seventh-century life of Eligius: 'no woman should presume to hang pieces of amber at the neck', the bishop of Noyon purportedly proclaimed. Frankish compilers continued to echo such condemnations in penitentials of the eighth century (Meaney 1981, 10–11, 14; Haddan and Stubbs 1871, 424). Grave finds and the various finds of both amber and jet figurines suggest that these gemstones were indeed worn as amulets throughout Northwest Europe (Meaney 1981, 67–71; Koktvedgaard Zeiten 1997, 14). In England, clerics seem to have adopted a more lenient attitude towards the use of amulets. The late seventh-century penitential of Archbishop Theodore of Canterbury permitted those afflicted by evil spirits 'to have stones and herbs without incantations' (Haddan and Stubbs 1871, 198). The scholar Alcuin at the beginning of the ninth century complained only that amulets were 'worn as though they were holy' (Meaney 1981, 14). By the end of the tenth century this attitude was modified in a homily delivered by Ælfric on St Bartholomew's day: 'it is not allowed any Christian man,' Ælfric declared, 'to obtain his health from any stone, nor from any tree, unless it be the holy sign of the cross' (Thorpe 1844–46, i: 474–476). That such injunctions may have been heeded is evidenced by the finds from York and Dublin: in Ireland pendants of wood and amber are in the shape of a cross, while in England craft-workers created small cruciforms of jet (Figure 7.5).

In the late twelfth and thirteenth centuries, clerics such as Albertus Magnus and Alexander Neckham (cited at beginning of paper) began to praise the properties of amber and jet (Duffin 2005; see Evans 1922 and Wykcoff 1967 for further examples of lapidary descriptions). Initially, these writers seem merely to paraphrase the works of Pliny, yet they also attribute new powers to amber and jet. Now amber and jet are capable not only of curing illness, but driving away evil spirits

and serpents too. Strikingly, in all accounts – from the ancients to the authors of the Middle Ages – amber and jet were not prized simply as beautiful adornments. They were valued for their medicinal and magical properties when imbibed or burned. Such practices may account for the large quantities of apparently unworked amber that were imported to York and Dublin, and to other trading centres in Northwest Europe. The large, roughly-cut blocks of jet that occur at the monastic settlements of Whitby and Jarrow in northern England may also have been used in this way, to provide shavings for remedial infusions (see Coulter forthcoming for further discussion).

Intriguingly, jet never appears to have been abhorred by the early medieval Church fathers as amber was. The possible presence of a jet workshop close to the York Minster will be recalled from above. Perhaps it was jet's black hue and close association with the monastery at Whitby that made it more acceptable to clerics as an ornament and as a curative. The abbess Hilda had made Whitby an important ecclesiastical centre in the seventh century. Legend tells how she found the site infested with snakes; her prayers turned the creatures to stone (Lovett 1905; Oakley 1965, 14). The jet serpent pendants discovered at York and in tenth-century Norway may well be reminders of this story. Admittedly, coiled serpents are a common motif in the Viking Age: they occur from Ireland to Sweden in a variety of materials (Wallace 1985, 134; Koktevdgaard Zeiten 1997, 13). Jet, however, has a special claim to the snake; historically, this gemstone is always described as possessing the power to drive these creatures away. It is in the tenth century, at the time that these jet snake pendants appear, that jet is imbued with a greater magic: the ability to drive away evil spirits, according to *Bald's Leechbook* (Cockayne 1864–6, ii: 296–299). The apex of this combination of Christian symbolism and folk belief occurs in the late eleventh and twelfth centuries. The site of Whitby had been sacked during the ninth century. In the 1070s the monastery was rebuilt by the Norman knight Reinfrid who wished to restore Whitby to its former glory, to imitate the earlier 'Golden Age' of monasticism in the North (Rollason 1989, 235). As pilgrims began to arrive, craft-workers at Whitby devised cruciform pendants of jet for a new market in souvenirs (see Figure 7.5). The earlier pendants of jet, such as the coiled snakes, are rare finds in the archaeological record. Each design is large, highly-

polished and unique, indicating that they were specially commissioned products. By comparison, the Whitby crosses are small, often crudely-finished and mass produced: examples can be found throughout northern England and overseas, in Scotland, Ireland, Norway and Greenland (Coulter forthcoming). These crosses represent more than pilgrim mementos. To the people who bought them, pilgrim badges were endowed with the wonder-working properties of the site (Webb 1999, 124–132). Artisans thus found the perfect medium for Whitby's souvenir trade in jet: a local material long credited with apotropaic powers that could be worked to combine both folk tradition and Christian belief in the holy symbol of the cross.

Consumers and artisans in context

Just as the Whitby jet crosses can be seen to imitate the small silver cruciform pendants of earlier centuries, artisans in York and London had been imitating gold and silver rings in cheaper base metals since the tenth century (Egan and Pritchard 1991, 334, 325; Mainman and Rogers 2000, 2585). The first rings of amber and jet also appear during the tenth century. In Dublin, artisans set up their workshops of amber and jet alongside those of bronze, silver and gold, perhaps in order to signal to potential customers that they offered an alternative: rings still of a semi-precious material but simpler in design and less costly in price than those of precious metals. Maxine Berg (1999, 65) has discovered a similar practice in eighteenth-century England: new products such as ceramics and glass were seen as 'substitutes for elite luxury goods'. Crucially, consumption of these new commodities was focused in towns. This is certainly the case for the use of amber and jet in the ninth to thirteenth centuries, where finds largely cluster at urban or monastic sites. Lorna Weatherill (1996, 81, 84) explains the difference between urban and country consumption for the seventeenth to eighteenth century as originating first in the focus of urban life on display, and second in the greater availability and access in towns to new goods. The same principles may also have applied to the emerging towns of early medieval Europe. Both Dublin and York were famed for the number of ships and peoples that came to their ports (Beeston 1950, 278; Godman 1982, 7). Dublin, in particular, was renowned for its wealth of goods: 'it was in that one place,' remarked one chronicler, 'were found the greatest quantities of gold and silver,

and bronze and precious stones' (*The War of the Gaedhil with the Gaill* ch. 69; Todd 1866, 116; Wallace 1985, 131, 135–136). Exposure to this type of circulation of goods will ultimately create a demand for new commodities. The people living and working at such settlements will seek to emulate the material culture practices of those of higher rank, while the port sites themselves will provide the network conditions to facilitate the circulation of new ideas and products. Put simply: '…as goods circulate, more things become necessities – and more still become the focus of want and desire' (Jones and Spang 1999, 49). In this respect, amber and jet may have been especially susceptible to becoming desired commodities. Not only do they make beautiful ornaments, but as noted above, they were believed to possess magical properties. Hence, like medicinal goods promoted as luxuries in eighteenth-century France (Jones and Spang 1999, 51), amber and jet could be perceived as necessities in the early medieval world.

In Ireland there had originally been three towns, according to travellers' accounts, where 'ships used to put in… buying from the inhabitants amber and coloured stones' (Beeston 1950, 278). Already by 1154, when this information came to be recorded, geographer Al-Idrisi noted that these towns had been abandoned as a result of civil war. Archaeologically, amber continues to be found in deposits up to the thirteenth century in Dublin. However, finds of this date are now predominately beads and less in number than in the tenth and eleventh centuries (Wallace 1981, 261). Thirteenth-century deposits in Waterford and Cork in southern Ireland have also yielded small numbers of large finely-turned amber beads (Hurley 1990, 76-77; Hurley *et al.* 1997, 520–522). The same pattern is mirrored in the English archaeological record: at York the range of amber and jet products is almost solely restricted to beads from the late twelfth century, while small amounts of amber beads now occur in regions south of the Danelaw, in London and Dover (Egan and Pritchard 1991, 305; Parfitt *et al.* 2006, 258–259 (see Figure 7.4). The evidence points to a shift in cultural affiliations and in craft production about the time of the Norman conquest of the British Isles (Wallace 1985, 132). No longer were amber and jet exported to sites in the British Isles to be worked by local artisans. Instead amber and jet appear to have been shipped to urban centres as finished products. Customs records

substantiate this view (Cobb 1990, 54–57, 70, 155), as do the beads recovered from a fifteenth-century shipwreck at Køge in Denmark. Here the remains of a barrel containing 262 amber beads and 499 jet beads represent finished commodities in transit (Liebgott 1995).

This transformation of the export market can probably be accounted for by a change in the control of amber resources. In the first century Tacitus had described how the Germans 'collect the amber… in the shallows or even on the beach… They gather it crude, pass it on unworked and are astounded at the price it fetches' (*Germania* ch. 45; Mattingly 1948, 138). By the mid sixteenth century, Olaus Magnus reported that 'none except authorised workers, under oath, may gather amber' (*Description of the Northern Peoples* ch. 12.8; Fisher and Higgens 1998, 593). In Magnus' time it was the prince, and not his authorised beach-combers, who made a profit from the sale of amber. Written records suggest that the Bishop of Sambia first claimed exclusive rights to amber-gathering in 1274. This was following the conquest of the Baltic region by the Teutonic Knights in the thirteenth century. Shortly afterward, *paternoster* guilds were established in Lübeck and Bruges (Grabowska 1983, 15–17), for the amber was not worked on the Baltic shores but sold to traders. 'These men,' wrote Olaus Magnus, 'after an initial smoothing and cleansing, send it [the amber] out in various forms, fresh and gleaming, over land and sea to different countries', to be worked into prayer beads, or *paternosters* (Fisher and Higgens 1998, 594; Van Houtte 1939, 156).

In England Lady Godiva is believed to have been the first to count her prayers on beads. At her death in 1041 she bequeathed her costly circlet of gems to the priory at Coventry. Here they were to be hung about the neck of the statue of the Virgin Mary (Winterbottom 2007, 471–3). From their inception then, prayer beads in the British Isles were fashioned from gemstones, and associated with women and with the Virgin Mary. During the eleventh and twelfth centuries, monastic revival in England promoted devotion to the Mother of God (Clayton 1990, 272–3). Shrines proliferated, the most famous dedicated to Our Lady being at Walsingham in Norfolk. *Paternoster*-makers congregated at these sites and in cathedral towns to sell their wares (Webb 1999, 122–24). This is illustrated in London where the thirteenth-century streets of Paternoster Lane and Ave Maria Row – named for the products made there – can be found close by St Paul's Cathedral (Riley

1868, 20). Jet had always been worked less extensively than amber, and now in the thirteenth and fourteenth centuries, artisans adapted their materials to create *paternosters* not just of amber and jet, but also of crystal, horn and glass (Gessler 1931, 45). Inventories of jewellers and haberdashers record the sale prices of these prayer beads: silver gauds and coral sets were costliest, bone for children cheapest, while the aspiring, mid-range customer could – as in Viking Age Dublin and York – find beads of amber and jet (Riley 1868, 455).

Conclusion: the making of christian amulets

By the end of the Middle Ages, *paternoster* beads had become fashion accessories and talismans (Winston-Allen 2005, 116). Worn as jewellery, they were desired by 'rich ladies, maidens and bourgeoises' (Webb 1999, 132); sold at shrines and cathedrals, they were essentially urban commodities (Fairchilds 1997, 47, 49). Little had, in effect, changed in the marketing of amber and jet. The cultural contacts established in the ninth century by Scandinavian settlers and merchants had initially re-stimulated the trade in amber and jet. Port centres served as the foci for craft production. Traders brought their barrel-loads of amber and blocks of jet here; resident craft-workers exploited existing traditions to create new products. These were manufactured as affordable alternatives for a local urban market, seeking to emulate the objects of precious stones and metals that were seen passing through the settlement. Ostensibly, artisans transformed the use of amber and jet over a three-hundred-year period, to make Christian prayer beads out of what had previously been condemned as pagan charms. Yet, while workers of amber and jet responded to the fluctuating political scene and religious fashions, consumers continued to use amber and jet as they always had: as a focus for display and protection. Perhaps men and women of the Late Middle Ages no longer took their possessions of amber and jet to the grave, but they still counted on their beads, to save them from evil and to pray for their souls now and at the hour of their death.

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Chapter 8

The home-made shoe, a glimpse of a hidden, but most 'affordable', craft

Quita Mould

The purpose of this paper is to bring a small number of very simple single-piece or one-piece shoes to the attention of a wider audience because, although their importance has been recognised by those engaged in the study of archaeological footwear (Hald 1972; Goubitz 1997, 432–435; Groenman-van Waateringe 2001, 387–388; Harjula 2008, 25, 97–101: Volken 2012, 69–70, 216), they are likely to have escaped the notice of those interested in the broader aspects of medieval material culture (*c*. 5th–15th century). They may represent a rare survival of an under-appreciated traditional craft used from the earliest times in the home to make everyday items for the family that continued in rural communities throughout the Middle Ages and into recent times. In 2008 a complete and beautifully preserved shoe of cowhide was found in a cave (Areni-1) in Armenia (Pinhasi *et al.* 2010). It is one of the earliest known shoes to be recovered having been radiocarbon dated to the 4th millennium BC and, as such, it appears to be what the well dressed person was wearing in the early Bronze Age. More surprisingly perhaps, this same style of shoe was also being worn by the rather badly dressed person in Oslo in the 13th century (Schia 1977, 176 fig. 98) and on the Faroe Islands off the northern coast of Scotland in the 20th century (Figure 8.1) (Hald 1972, 171–174 fig. 200). How can this be?

Shoe development

Images of prehistoric bodies, some clothed and wearing shoes, recovered from the peat bogs of North Western Europe are familiar to many. These shoes have been studied and described by Margrethe Hald (1972) and more recently the subject of European prehistoric footwear has been summarised by Prof. Willy Gronman-van Waateringe (2001) and categorised by Marquita Volken (2012). At their most simple these earliest shoes were little more than wrappings for the feet made of a single piece of untreated animal skin or hide (the skin of a larger animal), the sides gathered up, pulled together and tied to the foot with thongs or sinew (Figure 8.4 top for example). As time went on these simple single-piece designs were slightly modified by cutting and sewing in order to better shape them to the foot. Even at this early stage differing styles can be seen (Figure 8.2), of which the shoe from the cave in Armenia is one. Later the cutting patterns became increasingly more complex or the pleating and gathering of the material so adept that the resulting shoes became surprisingly sophisticated though still only made from a single piece of untreated or cured skin (Gronman-van Waateringe 2001, 382 fig. 3). These prehistoric shoes are rare finds surviving only under exceptional conditions as untreated skins and cured skins, that is skins treated using various drying, oiling or smoking techniques, quickly rot in damp conditions. Major changes can be seen in the footwear worn during the Roman period in both the materials and the constructions used. Within the Roman Empire vegetable-tanned leather was used in great quantity. During the vegetable-tanning process the skin undergoes chemical changes making it resistant to rot, consequently much has survived including footwear. As well as single-piece shoes, shoes were now made of several component parts with separate soles and uppers either nailed, stitched or thonged together, occurring in a wide range of styles (van Driel-Murray 2001, 343 fig. 10). Following the collapse of the Roman Empire the range of shoe constructions and styles appears to have become more limited and footwear made from a single piece of leather, though often with sophisticated cutting patterns, continued to be worn, along with shoes made with separate soles of turnshoe construction, through to the end of the millennium. The turnshoe construction is so named because the separate sole and upper were sewn together inside out and then turned the right side out with the result that the stitching of the seam, being on the inside

of the shoe, was protected from wear. Later the turnshoe construction was to rapidly take over as the principle method of shoe construction throughout North Western Europe for the rest of the medieval period. The development and progression of shoe constructions and styles worn throughout North Western Europe is well established so that, for the most part, when well preserved shoes are recovered they can be dated with confidence.

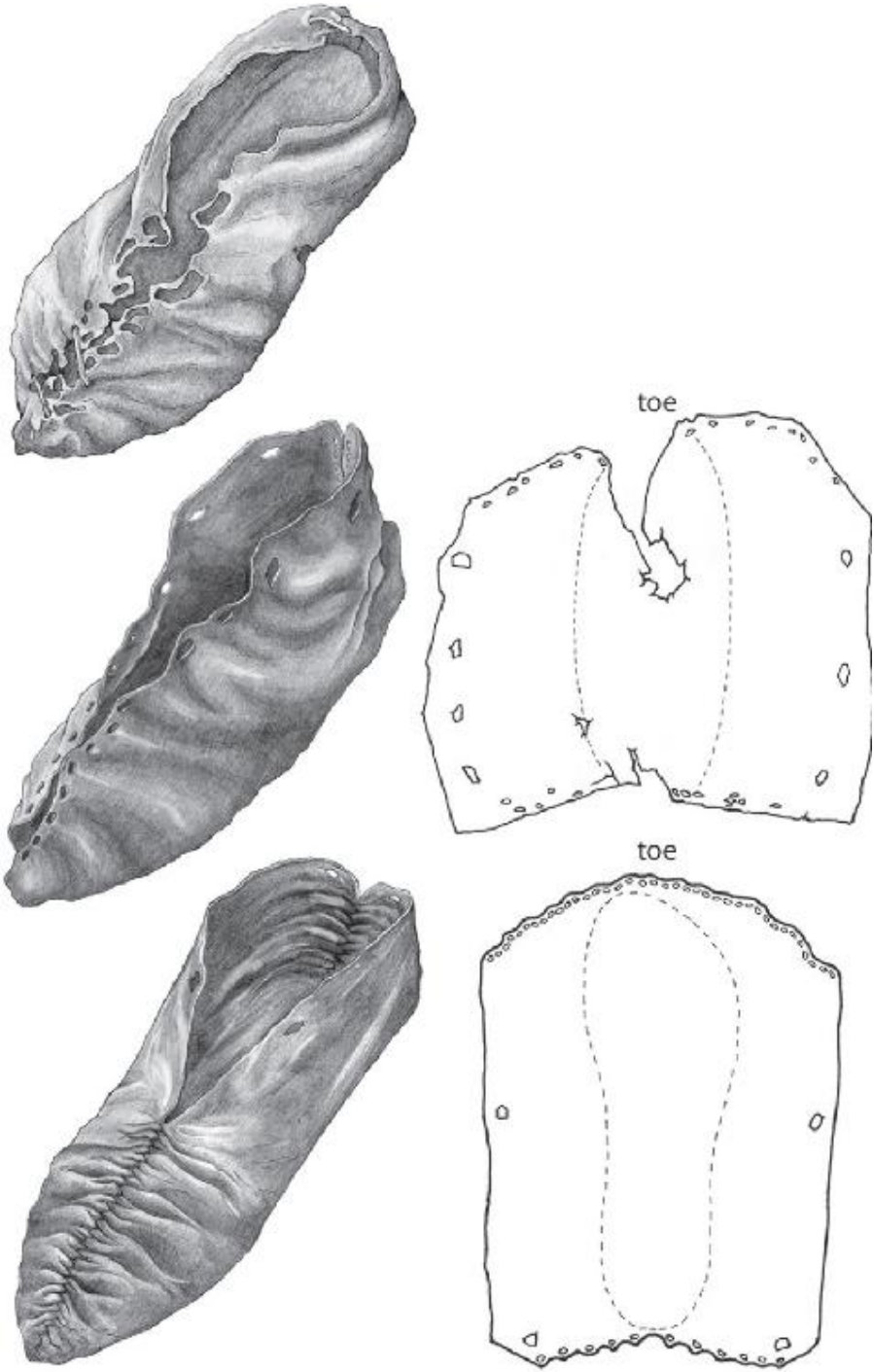
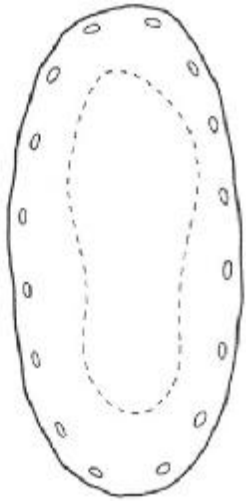
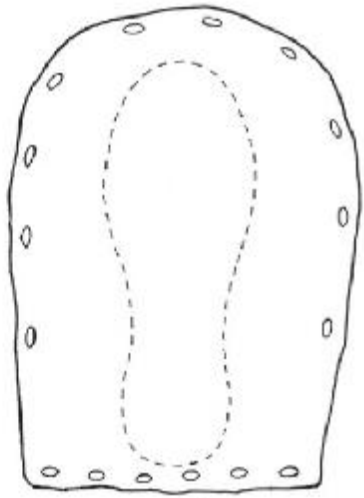
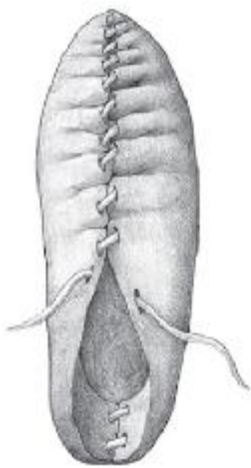


Figure 8.1:Top: Early Bronze Age shoe from Armenia (after Pinhasi et al. *2010 fig. A). Middle: 13th century shoe from Oslo (after Schia 1977, 176 fig. 98). Bottom: 20th century shoe from the Faroe Isles (after Hald 1972, 172 fig. 200). (Illustrations by Q.*

Mould and J. Anderson).







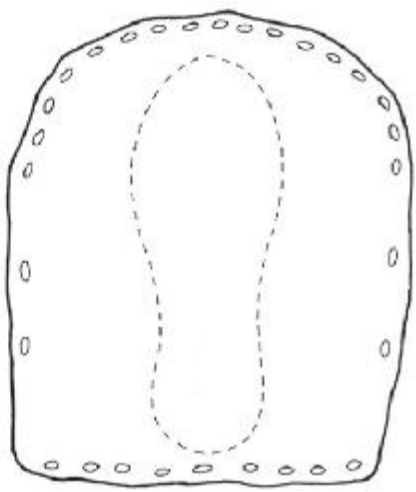


Figure 8.2: Cutting patterns and upper views of simple prehistoric shoes each made from a single piece of skin (after Gronman-van Waateringe 2001, 384 fig. 5 and 391, fig. 22). (Illustrations by Q. Mould and J. Anderson).

Single-piece shoes in later contexts

Over the years, however, a small number of the very simplest shoes of prehistoric type made from a single piece of untreated skin, cured skin or leather have been recovered from archaeological excavations in much later contexts and their presence has been difficult to explain. These primitive shoes have been found along with shoes of 'contemporary' styles and other items that provide a secure date for the contexts in which they were found. I am aware of examples occurring in late Roman/early medieval contexts, 7th–8th century contexts and 11th–16th century contexts. Harjula (2008, 98 fig. 70) was able to cite twenty-four find spots. The examples known to me are listed in an appendix below but no doubt there are others. Shoes of the simplest single-piece styles have been recovered from a range of significantly later contexts from both rural and urban sites across northern Europe. While they have been rarely found in the countries bordering the North Sea, their occurrence increases the further one travels north east across Europe. To the west of the continent only a handful have been found: two from late Roman/early medieval rural contexts (closer dating not available at present) in terps in Friesland in the Netherlands (Britsum, Figure 8.3 left, and Leeuwarden); three in 7th and 8th century contexts at Elisenhof a rural wurt settlement on the north west German coast (Figure 8.3 right) another dated to the 8th–9th century from Dorestad (Wijk bij Duurstede) in the Netherlands (Figure 8.4 middle); and four in a well dating no earlier than the very end of the 12th century at a farm near Amersfoort in the Netherlands (Figure 8.4 bottom). To the list may be added a simple shoe from a late 10th–early/mid 11th century building at the urban site at 16–22 Coppergate in York, England, that started my interest in this subject. Further north, two examples have been found at Trondheim, Norway, in urban contexts dated between 11th–13th century (Marstein 1989, 59, fig. 29a and b) and single examples are known from 13th century urban contexts at Oslo, Norway (Figure 8.1 middle) (Schia 1977, 176 fig. 98) and Riga, Latvia (Celmins 1998, 64 no. 90). To the east they are recovered in slightly larger numbers over a wider time span. Seventeen single-piece shoes have been found on a total of four urban sites at Turku, Finland in deposits dating from the 14th through to as late as the first part of the 16th century (Harjula

2008, 24–5). Single-piece footwear known as ‘porschni’ made in various styles are found in Russia, those at Novgorod coming from 10th through to 15th century contexts (Hald 1972, 138–140; Rybina 1992, 183–185 fig. V9, 1–4). These appear to be only slightly more sophisticated in design. Fifteen ‘soft peasant shoes’ recovered from 13th–15th century deposits at two excavations in Tallinn, Estonia (Sarv 2006, 161–162 fig. 3) may also fall into this category.

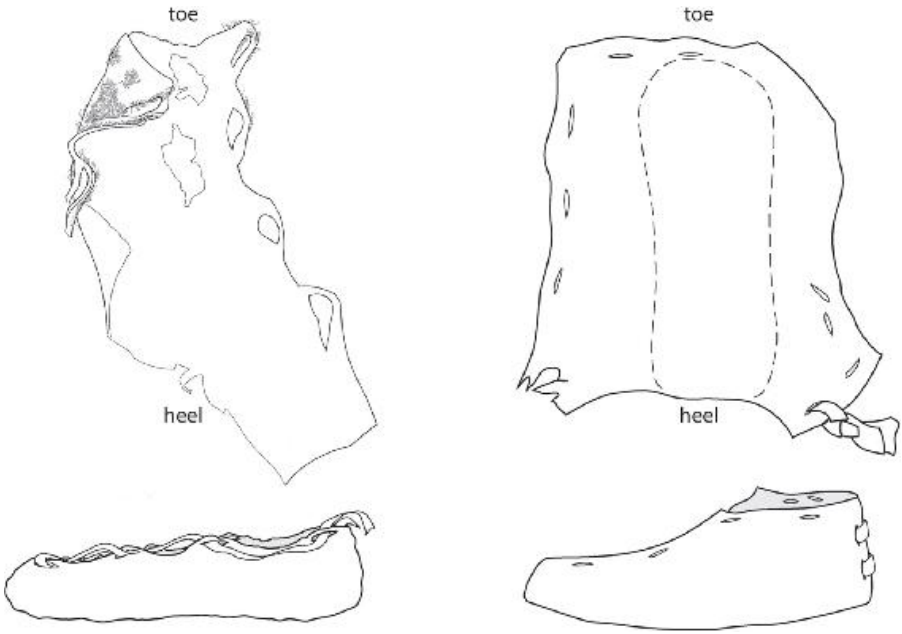


Figure 8.3: Left: One-piece shoe of late Roman/early medieval date from Britsum (by kind permission of Carol van Driel-Murray). Right: One-piece shoe of 7th–8th century date from Elisenhof (by kind permission of Carol van Driel-Murray). (Illustrations by Q. Mould and J. Anderson).

How where these simple shoes made?

The simple single-piece shoes of known prehistoric date are made of either untreated or cured skins. Analysis of the pollen associated with clothing and equipment belonging to the body found in a glacier at Hauslabjoch on the border of Austria and Italy revealed that the hides and skins had been cured using the application of animal fats and drying in a smoky environment (Groenman-van Waateringe *et al.* 1999; Groenman-van Waateringe 2001, 379). Untreated and cured hides and skins do not survive long term burial and only survive in exceptionally cold, dry or salty conditions or when subject to natural secondary tannage resulting from the immediate burial conditions as found in peat bogs or oak log coffins for example. Untreated or cured skins were processed using a simple range of tools made from stone, wood or bone. The cured skins required only a limited number of resources all readily available in the home which, depending on the method of curing involved, included fat that could be provided by the brains of the slaughtered animal, salt, ash and smoke from the fire (Harris 2011). The shoes could be made using just a sharp cutting edge and a point along with a stitching medium such as sinew that could also be provided by the slaughtered animal. No sophisticated tools or techniques were necessary. The materials and techniques involved in making these simple single-piece shoes all suggest they were home-made products, made for the family by the family, as and when needed. Being made of untreated or cured skins these shoes would not have been very robust or hard wearing but while they would wear out quickly, they would have been cheap and easy to replace. This being the case, one can imagine they were made extensively and subsequently discarded in very large numbers, however, being made of skin products that do not survive most burial environments they are rarely recovered in North West Europe.

Why are such ‘primitive’ shoes found in medieval deposits?

As these simple single-piece shoes have been found associated with closely datable medieval objects one cannot doubt their medieval date and the possibility of their being extreme examples of ‘residuality’

must be dismissed. It would seem that simple single-piece shoes of animal skin made and worn throughout prehistoric Europe, and beyond (Pinhasi *et al.* 2010), continued to be made and worn throughout the succeeding Roman and medieval periods: compare the shoe of Bronze Age date with that from a 8th to 9th century context and another from a late 12th century context (Figure 8.4). Indeed, these simple shoes continued in use into recent times in some places (see below for examples of this).

Why have these few examples survived?

The reason why a small number of simple, single-piece shoes have survived in later contexts would appear to lie in the materials in which they were made. It is not always clear from the descriptions provided of what materials these one-piece shoes were made. Indeed it can be difficult, if not impossible, on occasion to be certain whether, and by what method, a skin product has been treated as the burial environment may have resulted in a natural secondary tannage. Secondary tannage resulting from the surrounding burial environment preserves the skins but makes it impossible to distinguish whether the skin product was rawhide (a skin not treated in any way), a cured skin or, indeed, a tanned leather. One example, from Britsum in the Netherlands (Figure 8.3 left), is of un-tanned hide with the hair still on. It is likely to have survived because of the particular organic-rich environment in which it was buried (a terp layer of clay with a high proportion of stable litter and manure). This is a remarkable survivor; a single representative of the vast number of hide shoes that must have been made, worn and thrown away over the years. It would seem, however, that the majority of these simple shoes found in later deposits are of vegetable-tanned leather, principally of bovine leathers though that from York is of sheep/goatskin. In contrast to rawhides and cured skins, the method of vegetable-tanning hides and skins to produce leathers, a time-consuming process requiring a range of tools and materials, results in a product that does not rot when waterlogged. It would seem that these few simple, single-piece shoes of vegetable-tanned leather survived, whilst the majority of the examples, being made of rawhide or cured skins and hides, did not. Their owners, in these instances, had made their shoes from pieces of leather rather than cured hide.

Who might have made and worn these shoes?

These simple single-piece shoes were being worn and thrown away alongside other, more 'sophisticated', footwear. These few basic, one might even say rather 'crude', shoes appear to represent the footwear of a very different sector of the population than the majority of the medieval shoe styles recovered. While the consistency of cutting patterns, seams, and decoration all suggest that most medieval shoes were the product of skilled craftsmen in dedicated workshops the very simple, 'unsophisticated' nature of the single-piece shoes suggests a more home-made product. Could they represent shoes worn by the country dwellers rather than the townsfolk whose discarded footwear makes up the bulk of the medieval leatherwork recovered? It may be significant that, while most have been recovered from urban settlements, the earliest examples of these apparently 'prehistoric' shoes to be recovered from demonstrably later archaeological contexts (Figure 8.3) come from rural communities along the North Sea coast. The remains of four examples from the closely-dated well deposit at a farm near Amerfoort in the Netherlands (Figure 8.4 bottom) is also worthy of comment here. In rural districts butchered animal skins would be easily available and perhaps the traditional knowledge of how to cure animal skins and make simple footwear survived for longer in the more isolated country areas. While most of the simple shoes recovered from later deposits have been found in urban contexts, could it be that their owners were country dwellers? Perhaps they were travellers or those only recently come to town who found they needed to replace their worn out footwear and used the material most readily to hand which in these cases was leather rather than the cured skins in which they were usually made at home.

Can these simple shoes tell us anything about the transition from the use of cured skins to leather in medieval Britain?

These simple shoes are likely to have been worn by the majority of the population until vegetable-tanned leather became easily available as they were simply and quickly made of readily available materials that all could process. With the end of the Roman Empire the use of vegetable-tanned leather came to an end in Britain as it was no longer

widely available. The native populations and the incoming Anglo-Saxon migrants to Britain continued to use skins and hides preserved by other methods as they had always done. For the most part early Anglo-Saxon shoe finds in Britain are rare. While a very small number of shoes have been found, such as those from the Early Christian monastery of Iona, in Scotland (Groenman-van Waateringe 1981) and those placed in the burial in Mound I at Sutton Hoo (East 1983), a strong case for their being exotic foreign imports can be argued. The Early Christian shoes from Ireland (Lucas 1956 type 1) might be similarly considered. Only two simple single-piece shoes of calf/cow hide found at the Buiston crannog in Scotland with artefacts dating to the early seventh century (Groenman-van Waateringe 2001, 391) and a single-piece shoe radio carbon dated to AD 640–760 found in a hollowed log at Burlescombe, Devon (Friendship-Taylor 2007; Gent 2007, 42 fig. 6) provides evidence of the footwear worn by the common man in the British Isles at that time. At this date English archaeological investigations have been dominated by excavations of early Saxon occupation and burial sites on the dry, free-draining soils in the southern part of the country, consequently the surviving evidence is heavily biased toward mineralised remains associated with rapidly corroded items of metalwork (Cameron 2011). In England it is not until the later 8th/9th century that vegetable-tanned leather once again begins to be recovered in quantity from archaeological excavations of thick, organic-rich, occupation deposits. These finds from waterlogged deposits show the widespread use of vegetable-tanned leather from this time and this increase is likely to be associated with increased urbanisation and changing patterns of land tenure and animal husbandry. One may speculate that, while in the larger centres of population it became convenient and desirable to use the new product that was becoming widely available, in the country districts the use of cured skins and hides continued for a time with items of vegetable-tanned leather being purchased when it could be afforded on visits to market or from travelling pedlars who brought their wares into the countryside. It is likely that the two materials continued to be used side by side in the countryside and it may be that vegetable-tanned leather never completely took over from home-cured skins in some remote, rural, communities.

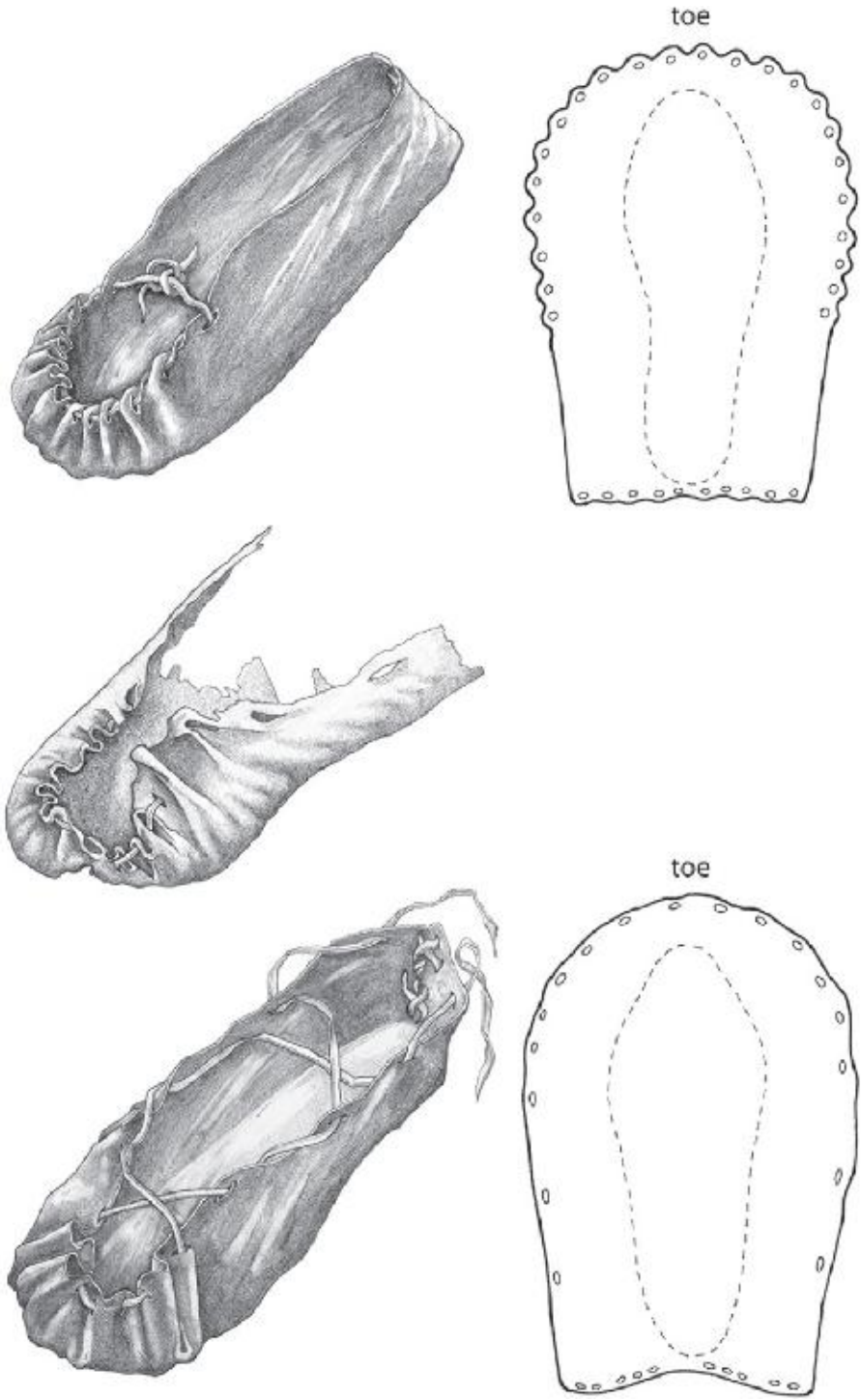


Figure 8.4: Top: One-piece shoe of late Bronze Age/Iron Age date c. *1000 BC (by kind permission of Corrie Goubitz). Middle: One-piece shoe of 8th/9th century date from Wijk*

bij Duurstede (by kind permission of Corrie Goubitz). Bottom: One-piece shoe of late 12th century date from Amersfoort (by kind permission of Corrie Goubitz). (Illustrations by Q. Mould and J. Anderson).

There can be few man-made objects more affordable than simple shoes made from the skin removed from an animal as the first stage of preparing lunch. As such it is possible that these simple shoes made of cured skins were worn by country dwellers well into the medieval period. Single-piece shoes were commonly worn throughout Ireland down to the end of the seventeenth century and probably later (Lucas 1956, 382; Groenman-van Waateringe 1975, 24). In a letter to Henry VIII sent in 1543, John Elder, a Scottish clerk, describes the making of such shoes from red deer skin, hair side outward, in Scotland at that time (Mackay and Carmichael 1894, 137) and other references to the wearing of these shoes by the Scots earlier in the high medieval period are known (Mackay and Carmichael 1894, 138–139). In England evidence for their use is difficult to find, however, and it would seem that the wearing of simple shoes of cured skins, and the widespread use of cured skins, with the exception of fur skins, quickly fell out of use.

Why go barefoot if simple shoes of cured skin were available?

People appear to have gone without shoes though the protection and warmth provided to the feet by these simple shoes in our colder northern climates would have been welcome inferring that they were no longer commonly used. Medieval illustrations show members of the least favoured sectors of society, such as beggars, lepers and the sick, barefoot. We may presume that a significant percentage of another part of the population, namely the children, frequently went barefoot as they did throughout much of our history, indeed, many photographs taken at the turn of the 20th century show children of the English working classes barefoot. The proportion of the wider medieval population who went barefoot is difficult to judge however. The Luttrell Psalter written and illuminated in England during the second quarter of the 14th century provides a wonderful picture of rural life at that time. Most of the country folk shown going about their everyday activities are in shoes or footed hose, but occasionally certain jobs such as the threshing of corn are depicted being undertaken barefoot. A woman feeding chickens wears no shoes, while a man tending geese does (Figure 8.5) (Backhouse 2000, 29 f.166

verso and f.169 verso respectively). The barefoot woman may just have popped out from her kitchen to feed the chickens in the yard, while the man herding geese may have walked into the fields some distance from home making his wearing of shoes more necessary. There may be reasons for the removal of footwear when performing certain tasks that are lost to us looking at the illustrations today. A person may be depicted barefoot because of the job they are undertaking rather than a reflection of their comparative wealth or status or the availability of footwear to them. More often than not those shown in medieval illustrations engaged in household and outdoor activities and a range of crafts are in footwear though those employed in potentially wet activities such the dyeing of textiles may be barefoot (the illustration of the boy Jesus as an apprentice dyer, *c*. 1300 Bodleian Library, MS Selden supra 38, f. 27 for example). An illustration of medieval glass blowers, a miniature from a manuscript of 'Sir John Mandeville's Travels', probably Bohemian, and *c*. 1420 in date (B.L., MS Add. 24189) shows a particularly interesting situation (Figure 8.6). Amongst those working at the glass furnace is a man wearing a boot on only one foot, his other is bare. One can only imagine that in his job working so closely with extremely hot materials one protected foot was better than no protection at all. Another worker has his bare toes poking through the worn out foot of his hose while the glass blower appears well shod. Evidently not all the workers in this industry could afford footwear though looking at the situation through 21st century eyes one would think footwear was a necessity for the job. These examples taken from pictorial evidence would suggest that toward the end of the medieval period, while the reasons for going barefoot may be complex, the alternative provided by simple shoes of cured skin was no longer available at least to those parts of the population commonly the subject of manuscript illustration. Nor does it appear to get any easier to fully understand the subtleties of who went barefoot, and why, in more recent times. A survey of the literary evidence available from the 17th through to the 19th centuries to identify the social and economic reasons for going barefoot in Ireland was conducted but considered by its author to be inconclusive (Lucas 1956).

Figure 8.5: Top: Woman feeding a hen and her chicks ©The British Library Board (Luttrell Psalter/42130 f. 166 verso). Bottom: The gooseherd ©The British Library Board (Luttrell Psalter/42130 f. 169 verso).

Figure 8.6: Medieval glass blowers c. *1420 (after a miniature from a manuscript of 'Sir John Mandeville's Travels B.L. MS. Add. 24189. Drawn by J. Anderson)*.

During the medieval period the use of vegetable-tanned leather increased rapidly and its versatility and the ease by which leather items could be repaired and recycled made it readily available. One might speculate that as time went on the demand and the price paid for hides to make into leather was sufficiently high that the availability of hides and skins for home curing became severely restricted. Evidence from animal bones indicates changes in provisioning patterns in Saxo-Norman England with animal products becoming increasingly channelled through urban markets. The abolition of rents payable in food and increasing tax burdens that could only be paid in currency at this time resulted in the decrease in bartering forcing the peasantry to sell greater quantities of their livestock (Sykes 2007, 42–44). One might argue that no longer having cured skins cheaply available the use of simple home-made shoes would have declined. Eventually these shoes may have become associated with former times with the result that the country dwellers chose not to wear simple single-piece shoes of cured skin in case they were considered 'uncivilised' by others. Lucas tells us that in 17th century Ireland the wearing of single-piece shoes was confined to the poorer classes and was regarded as a sign of social inferiority (Lucas 1956, 382).

The continued use of simple single-piece shoes in recent times

While the use of vegetable-tanned leather appears to have been quickly adopted in England the further away one travelled from urban centres of population access to vegetable-tanned leather may have became more difficult and consequently the leather more expensive. It is likely that in the more remote areas of the countryside the use of cured skin products and shoes made from them continued for longer. Indeed, simple single-piece shoes of 'prehistoric' style were being made and worn by members of isolated communities around the British Isles in recent times. Pampooties made from raw cow skin, hair side outward, were being worn in the Aran Islands off the west coast of Ireland in the middle of the last century (Hald 1972, 161–164). Similarly rawhide shoes were worn on Shetland, Orkney and the Hebridean Islands of Scotland, where they were known by their celtic

name of cuaran or their Scottish name of rivelin (Hald 1972, 166) or derivations of them. Shoes of single-piece but slightly more sophisticated construction with back, and sometimes toe seams, and fine pleating occurred on the Faroe Islands (Figure 8.1 bottom) and in Iceland where they continue to be part of folk costume. Locations in Northern Europe where simple one-piece shoes were worn in 'modern times' have been listed by Lucas as follows: Isle of Man, Scotland, Shetland, Norway, Estonia, Latvia, Russia and Hungary (Lucas 1956, 383). Interestingly, Lucas noted that in Ireland and in the Isle of Man these shoes were made in both 'tanned and untanned leather' (*sic*.) so that the shoes were made in both cured hides and in vegetable-tanned leather as we have found in the examples that have survived in medieval deposits. In the collection of the Deutsches Schuhmuseum (Offenbach, Germany) are examples of single-piece shoes collected principally during the first half of the 20th century from Serbia (leather), the Balkans (leather), Armenia (rawhide), Italy (rawhide), Iran (leather and rawhide examples), Paraguay (rawhide) and 'elsewhere in South America' (rawhide). Recently a group of simple single-piece shoes of pigskin, worn by country folk in the region of Florina in Northern Greece between AD 1900–1935 have been conserved to ensure their survival (Malea and Tampaka 2010). It is clear that the tradition of making simple single-piece shoes was widespread throughout our history and examples of their use into modern times extensive.

Conclusion

In Northern Europe leather shoes of medieval date are recovered, often in quantity, wherever the burial environment is favourable. For the most part, this footwear represents the discarded rubbish of the urban population, sometimes the wealthy but more often the merchant and labouring classes. Running alongside this mainstream 'urban' footwear perhaps we are now able to recognise a small number of shoes that represent, for want of a better term, 'rural peasant' costume. These shoes of single-piece construction may be compared both with earlier prehistoric finds and later folk costume, in some cases made and worn into recent times. While the proportion of the medieval population that went barefoot is difficult to estimate is it not likely that much of the rural 'peasant' population were clothed in

products they made themselves of materials readily to hand, including their footwear? The simple footwear described here made of cured skins that quickly rot under both 'normal' and waterlogged burial conditions may well have continued in use from the prehistoric period, throughout the medieval period and into modern times more widely than has been appreciated but, being made of highly ephemeral materials, they are rarely recovered. These few shoes of 'primitive type' recovered from medieval contexts may provide us with a glimpse of a sector of medieval society, the rural poor, rarely discernible in the archaeological record.

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Appendix: Simple one-piece shoes of 'prehistoric' styles from archaeological contexts of later date

(Recovered from Late Roman and medieval contexts, roughly in date order). Researchers are also advised to consult Harjula (2008, 97–101 and fig. 70), where further finds from other sites in Russian, Latvia, Lithuania, Estonia, Sweden and Norway are cited.

Late Roman/early medieval

1 Britsum, a terp in the province of Friesland, northern Netherlands.

The remains of a simple single-piece shoe was found in a terp layer (a build up of clay, stable litter and manure), the precise dating is uncertain at present but is believed to date to the 4th–5th century. The shoe was found with other, significantly more sophisticated, footwear belonging to the late Roman/early medieval period. The single-piece shoe is of cow hide with the hair present, and for this reason thought to be untanned hide rather than a vegetable-tanned

leather. The shoe is made with the hair side outward, the hair has hardly worn away (pers. comm. Carol van Driel-Murray).

2 Leeuwarden, a terp in the province of Friesland, northern Netherlands
A simple single-piece shoe found in a Late Roman/Early medieval context and made from a piece of recycled Roman tent leather (vegetable-tanned) (pers. comm. Carol van Driel-Murray).

Early medieval

3 Wijk-bij-Duurstede (province of Gelderland), The Netherlands
Found at Dorestad, the Carolingian marketplace located on the River Rhine. The forepart of a simple single-piece shoe for the left foot was found in a well along with a number of other shoes of turnshoe construction including examples with soles with pointed heel extensions. The shoe was made of calfskin leather, the thinnest of the leather compared with known prehistoric examples was noted. Context dated to the second half of the 8th-first half of the 9th century (Goubitz 1997, 434; Groenman van-Waateringe 1976, Abb. 2:13; 2001, 387 and fig. 14).

4 Elisenhof, a terp on the Jutland Peninsular, North Sea coat, North Germany
At least three examples of simple single-piece shoes found along with shoes of more sophisticated single-piece construction and of turnshoe construction have been recovered from Elisenhof, a farming community on the northern side of the Eider estuary.

Two examples from the excavations conducted by A. Bantelmann are described and discussed by Hald (1972, 93–95, figs 106–109) and their simple cutting pattern illustrated by Goubitz (1997, 435 fig. 11a). Another example comes from later excavations (Grenander-Nyberg 1985, Taf. 68). Pottery recovered suggests that the settlement dates back to the middle of the 8th century (Hald 1972, 99). The shoes from Bantelmann's excavations were thought to date to the second half of the 8th century and the 9th century, a least one of the simple one-piece shoes is said by Goubitz to date to the 9th century (Goubitz 1997, 434).

Later medieval

5 Coppergate, York, England

A simple one piece shoe was found in a backfill deposit within a building located behind a building on the street frontage on Tenement B at 16–22 Coppergate. This shoe made from a single piece of leather has a slightly more sophisticated cutting pattern than the preceding examples in that the curved area at the toe, present on the others, has been cut away and the resulting oblique cut edge is seamed producing a slightly oblique seam off centre but lying comfortably on top of the toes. It was suggested that a separate piece, known as a 'gore' or an 'apron' may have been inserted to lie across the top of the foot at the base of the toes in the manner of a modern moccasin but there is no evidence for this surviving. The shoe was made of sheep/goatskin leather. Context dated *c*. 975-early/mid 11th century (Period 5b) (Mould *et al*. 2003, 3275–3277, 3439 and fig. 1598 no. 15357).

6 Hoogland near Amersfoort, (province of Utrecht), the Netherlands.
The remains of four single-piece shoes with back seams sewn with thong were found in a filled-in 'tree trunk' well excavated at the site of a demolished 17th century farmhouse known locally as the 'De Oude Hoef'. The contents of the well were found to be about 500 years earlier than the farmhouse. In one account the contents of the well were dated no earlier than the 12th century by the presence of a single sherd of 12th century Pingsdorf pottery found in the sand underneath the well (Goubitz 1997, 432–435, figs 8–10). In another the shoe was dated *c*. 1200 by Pingsdorf-style pottery within the backfill of the well (Goubitz *et al*. 2001, 27–28 fig. 1). The four shoes are of leather identified as being calfskin. The author notes that the calfskin is notably thinner than the thicker material used for prehistoric shoes of this type and compares them directly with the example from Wijk bij Duurstede (Dorestad) also of thin leather.

7 Trondheim, Norway
Two one-piece shoes (N26310 and N55901) were found in 11th–13th century contexts (Marstein 1989, 59 fig. 29 a N26310a and b). Information provided by Marquita Volken.

8 Riga, Latvia
A simple one-piece shoe, described as a 'pastala' made of cow leather and of 13th century date was exhibited amongst the finds from excavations from Riga 1991–1997 (Celmins 1998, 64 no. 90).

Information provided by Marquita Volken.

9 Gamlebyen, Oslo, Norway

A simple one-piece shoe described as a hide shoe was found in a 13th century context at 'Mindets tomt' in the centre of the town in the Gamlebyn district (Schia 1977, 176 fig. 98 hudsko G4268). Though called a hide shoe this may not necessary indicated it was made of cured skin rather than leather. The term hudsko ('hide shoe') is used to describe a one-piece shoe (Hald 1972, 9). Information provided by Marquita Volken.

10 Novgorod, Russia

One-piece shoes of leather known as 'porshni' are part of the vast assemblage of footwear recovered from various excavations at Novgorod from contexts dating from the 10th through to the 15th centuries (Hald 1972, 137–142 and figs 165–167, 174; Rybina 1992, 183–187). Described as being 'cut from a single piece of leather with holes around the edges for threading a long strap, which would be pulled tight and then wrapped around the legs several times and tied' (Rybina 1992, 183–184) they fall into the general category of simple single-piece shoes found in contexts with shoes of contemporary medieval types that interest us here. They were made of 'a piece of soft hide from the animal's belly' (Hald 1972, 139). Different styles, some with decorative slits, are present (Rybina 1992, 184, fig. V9 1–3, and 4 though here described as a 'soft shoe') and it is clear that while many, perhaps the majority, do not conform to the very simplest 'prehistoric' cutting pattern with which this paper is concerned one-piece shoes were being worn alongside contemporary shoes of medieval types and styles in the town and are likely to represent the costume of the peasant. Other examples of these simple one-piece shoes from Novgorod include one illustrated in the published proceedings of a conference held in the town in 2004 (Janin 2004, 288 fig. 11), information provided by Marquita Volken. Another described as 'a leather shoe in the Novgorod Archaeological Museum, Russia' can be seen on the website http:users.stlcc.edu/mfuller/Slavic/shoe.html (website constructed 19th November 2009, updated 10th March 2011) visited on 7/06/2011 where it is referenced as Antropova 2004, 18, 283–292 (which appears to be the same article

as Janin 2004 given above).

11 Tallinn, Estonia

Fifteen shoes described as 'soft peasant shoes made of a rectangular piece of leather with holes or slits at the edges of the fastening laces' were recovered from excavations at Town Hall Square and 8–10 Sauna Street, Tallinn from contexts dated to 13th–15th century along with medieval footwear of turnshoe construction and of known contemporary styles (Sarv 2006, 161–2, fig. 3). There is a little uncertainty about the cutting pattern or patterns employed however as the children's soft peasant shoes are described as 'usually made of two parts: the heel and toe were cut separately.' We are also told that 'two of the shoes had the back part joining in the middle of the heel' and that the heel was sewn with leather thong and the front and back parts with thread or bass (*sic*.).'

12 Turku, Finland

Seventeen one-piece shoes were recovered from four excavations at Turku, three located within the town and one from Turku Castle (Harjula 2008, 21–25, figs 5–6, 97, fig. 70). Four different one-piece cutting patterns were represented (Harjula 2008, fig. 6), all the shoes being made of cattle leather. One shoe came from a context dated to the first quarter of the 14th century at Old Great Market Place, another from construction work in Uudenmaankatu4/Hämeenkatu 16 was associated with other shoes dating to the second half of the 14th and the 15th centuries. A single shoe was found in the eastern outer bailey at Turku Castle in a deposit with a suggested date of early 16th century. A large group of at least fourteen shoes from the ÅA-site came from deposits ranging in date from the 14th through to the 16th–17th century (Harjula 2008, Tab. 4). Interestingly, two differing 'qualities' of one-piece shoe were noted, those apparently made quickly without much skill and those 'manufactured with care and skill and with knowledge of complex patterns'. Fragments of the fastening thong was preserved in five of the shoes and found to be of Z-plied plant fibre, three of flax and two of hemp (Harjula 2008, 24).

13 Vyborg, medieval Finland

Saksa, Belsky, Kurbatov, Polyakova and Suhonen 2002, 60–2 fig. 21.4 (no other details known).

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Chapter 9

Fashion and necessity. Anglo-Norman leatherworkers and changing markets

Quita Mould and Esther Cameron

> 'Truly, Sir, all that I live by is with the awl: I meddle with no tradesman's matters, nor women's matters, but with awl. I am, indeed, sir, a surgeon to old shoes; when they are in great danger, I re-cover them. As proper men as ever trod upon neats-leather have gone upon my handiwork'.
>
> Second Commoner, *Julius Caesar*, Act 1, Scene 1 (Shakespeare)

This paper summarises what is currently known about leatherworking in England from the middle years of the 11th through to the end of the 12th centuries. While drawing on the published work of others, it also incorporates recent work by the authors and serves to extend their consideration of leatherworking in Anglo-Saxon England (Cameron and Mould 2011) into the period immediately following the Norman Conquest (1066 AD).

What we know of the developing Anglo-Norman leather industry is based principally on the study of the surviving leatherwork as, like the preceding Anglo-Saxon period, our understanding is limited by the lack of evidence for tanneries and workshops (Driel-Murray 2011; Cameron and Mould 2011). Leatherwork excavated from urban centres such as London, York and Oxford provides increasing evidence that by the end of the 11th century vegetable-tanned leather was in common use by all but the very lowest members of society. Does this mean that by this time leather was indeed the product of an affordable craft?

Leatherworking in late 11th and 12th century England

In most production processes the value of an item increases with each intervention until the point of sale. The production of vegetable-tanned leather required many interventions and the resulting material was costly. It is generally accepted that the traditional ways of vegetable-tanning in England continued little changed from the medieval period up to the end of the 18th century. Let us attempt to assess the relative value of leather in the medieval period by examining here the chain of socio-economic processes involved in its production. At its outset, a cow is taken to market, the owner having already invested in the cost of its feed. The cow is bought by a butcher who slaughters it and sells the meat for consumption, the major bones to the boneworker and the hide, with its horns and hooves attached, to the tanner. The tanner immediately sells the horns to the hornworker and the foot bones and hooves to the gluemaker (MacGregor 1998, 14). He cleans the hide, removing the hair and remaining flesh and prepares it for the tanning pits (Jackson 1985, 8; Thomson 1998, 4–5). He will be able to sell on the animal hair to the plasterer, and potentially any lime infusion used during the initial processing, although it is now thought that liming was not commonly practiced until the 14th century (Driel-Murray 2008, 485; 2011, 74). The hide is soaked in a tanning solution of water and oak bark for at least twelve months, occasionally up to three years, during which time it is moved through a series of pits containing solutions of increasing potency (Thomson 2011, 5), before being removed to the drying sheds. At this point, the cost to the tanner is large because in addition to the initial purchase of the hide can be added further outlays for land tenure, access to running water, supplies of oak bark and its milling, and later of lime. Even at this stage the resulting crust leather cannot be used because it is thick, uneven and inflexible. It has yet to be processed by the 'currier' who reduces the hide to a uniform thickness and then softens it by working in fats and oils, smoothes it using special tools and finally colours it with dyes. It is only after all this that the leather can be sold for profit.

The finished hides could now be bought by the leatherworkers but the cost was such that an opportunity for further profit presented

itself. Amongst other activities the 'leatherseller' sometimes acted as a middleman purchasing hides, cutting them into smaller pieces and selling them to leatherworkers who could not afford the price of a complete hide themselves. This had the added benefit that the leatherworkers were able to select only those parts of the hide that had the particular properties they required. It was the skill of the leatherworker, whether shoe-maker, sheath-maker, saddler or bottle-maker, which added the final value to the finished product. With these commodities it was the ingenuity of the cutting pattern, the fineness of the stitching and the beauty of the decoration which enhanced the sale price.

For our particular period of interest, the second half of the 11th and the 12th century, English documentary evidence for the various leatherworking trades provides some insight into the range of leatherworking crafts that were supported in the urban setting. At York, a guild of glovers, a guild of leatherworkers (*corariorum)* and a 'craft' of saddlers are recorded in 1181. Twelfth century charters recording land transactions mention as witnesses a currier, a saddler, cordwainers (*corveisor* and *allutarius* both terms referring to a maker of shoes of fine leathers), a buckler-maker (shield-maker), a girdler (*le cainturer*), a tanner and a skinner (Liddy 2003, 3222–3). The relative financial standing of these various leatherworking trades in the 12th century is difficult to gauge but later medieval documents suggest that manufacturing leather was more profitable than making it into goods as late 14th-century tax returns show that tanners paid more tax than those who made shoes (cordwainers) or those who repaired them (cobblers) (Cherry 1991, 309 quoting the Victoria County History, Oxon iv, 45). Of all these actors, it is the tanner who invests the most in terms of stock, premises, labour and time. The length of his investment, from the initial purchase of raw materials until the eventual sale of the finished leather, required capital on a scale that sets the tanner apart from the rest.

How did vegetable-tanned leather become more widely affordable?

If leather was so costly to produce, how did it come to be so widely available? We can assume that élite members of 11th and 12th-century society commissioned their own fashionable leather goods not

only as necessities but also as expressions of social status. The evidence suggests that as these goods became less desirable, perhaps through wear or a change in fashion, they were passed down to other, lesser, members of the household and servants. Despite being heavily worn, many leather items were not discarded but repaired in order to extend their usable life. Footwear, which represents the majority of leather recovered from medieval sites, frequently shows evidence of the work of the cobbler who, traditionally, bought old, worn shoes and refurbished them for resale (see the quotation from Julius Caesar at the beginning of this paper).

A collection of late 11th and early 12th-century shoes from the moat at Oxford Castle shows signs of repair in 15% of the total, and half of these had been repaired more than once before being finally thrown away (Mould 2010a). In the years immediately before the conquest, the occurrence of repairs on shoe soles at Coppergate, York is 13% of the total, while in the following period it increases to 26% with some soles having been repaired as many as six times (Mould *et al*. 2003, 3349 table 378). It would seem that the demand for repairing old leather goods to extend their use was strong and increased with time.

The recycling of leather was widely undertaken. In the shoe trade the most extreme recycling of old shoes took the form of cutting away the upper from the worn out sole and adding a new sole to produce a shoe of smaller size. Examples of such radical refurbishment, later to become known as 'translation', can be seen in early groups of leatherwork including an early-mid 12th century example from Finzel's Reach, Bristol (Figure 9.1). The cobbler carefully salvaged as much reusable leather as he could for his work. Consequently, the discarded seams are often all that we find remaining of larger leather objects, the greater part having been recycled. Patches used to repair worn areas of shoe sole occasionally retain features of the other shoe parts from which they have been cut. It was perhaps this process of repeated repair and resale always at a reduced cost that allowed leather objects to be afforded by increasing numbers of people of lower social standing. Traditionally, cobblers were regarded by the other branches of the leatherworking trades as being at the bottom of the social scale, reflecting the status of the people they served. 14th-century tax returns for Oxford show, tellingly, that shoemakers'

families commonly employed servants whereas cobblers' families, on the whole, did not (Oxford Poll Tax 1381).

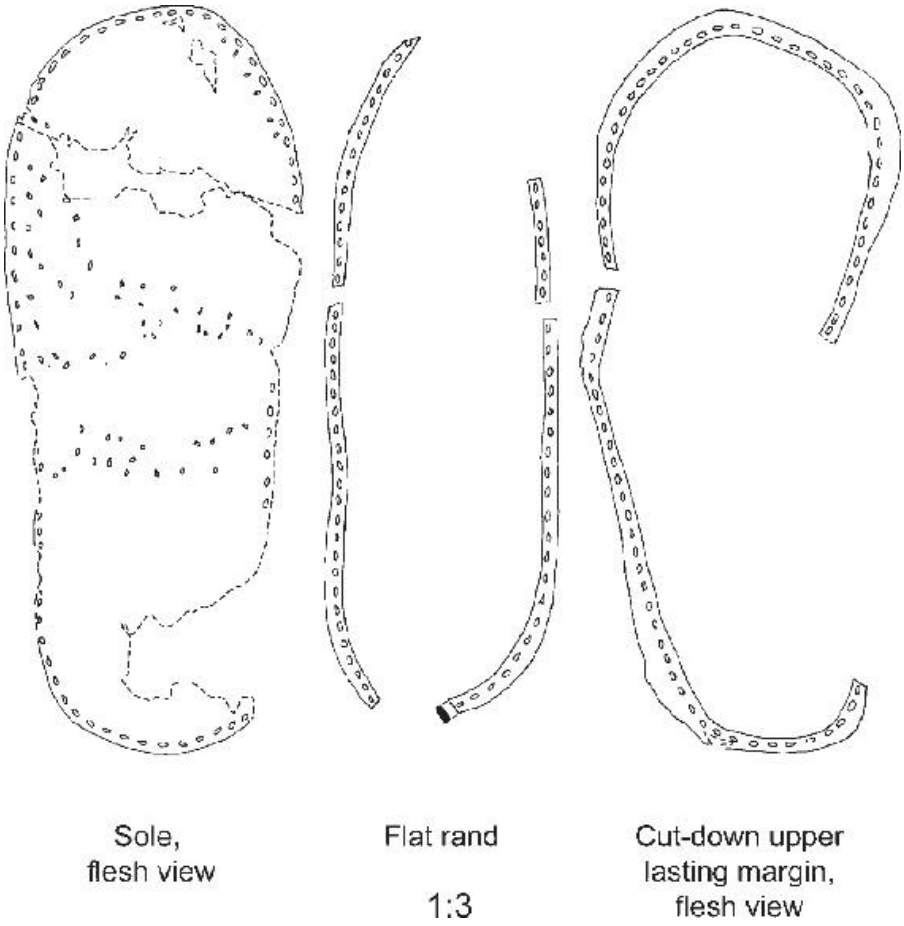

Figure 9.1: Norman cobbling waste: sole, rand and upper seam cut from an early-mid 12th-century shoe from Finzel's Reach, Bristol. (Drawing by Q. Mould and J. Anderson).

Even among the more prestigious items, such as book satchels, caskets for reliquaries, and sheaths for certain types of weapons, we find examples of thrift. Despite the fact that these items of leatherwork were ornately decorated presumably to reflect the status of the items contained, it is not unusual to find them lined with a patchwork of small pieces of leather cobbled together, indicating that the cost of the material was so high that savings were made wherever possible (Figure 9.2).

The organisation and location of leatherworking activities

It is unlikely that either the production of vegetable-tanned leather or the making of the wide range of leather goods available at this time was undertaken on a seasonal basis (MacGregor 1998, 14). Although the slaughter of animals may have been seasonal, hides could be preserved with salt, allowing them to be worked on by the tanner throughout the rest of the year. 12th-century leather products show a consistency in cutting patterns, seams and decoration which suggest they were made in dedicated workshops. Repairs also seem to be professionally undertaken as the general consistency and standard of cobbling stands in contrast to the clumsy home-made repairs that are sometimes found.

Practicality would suggests that those engaged in butchery, boneworking, hornworking, gluemaking and leather production tended to occupy the same locality in a settlement, not least for the convenience of the easy transfer of the various raw materials between them and streets named after these trades may still be seen in some ancient English towns grouped together in the same neighbourhood. At York the earliest recorded street name with a tanning connection is *Barkergate* which dates to *c*. 1230 (Fellows-Jensen 2003, 3226–3227). This is one of several occupational street names in the city which occur in Scandinavian form (or compounds of Scandinavian and Middle English), which implies that these trades had been present in the settlement well before the13th century. This evidence suggests that tanning was undertaken in two areas of York, one to the north of the city between the city wall and the River Foss in the vicinity of Monk Bar, and the other to the south of the River Ouse where shield-making also occurred. In contrast, street names connected with

leatherworking, such as belt-maker (*girdeler*), glove-maker (*glover*) and saddler (*sadlere*), were all clustered in the centre of the city, presumably where the finished goods were sold (Fellows-Jensen 2003, 3227). Currently there is no archaeological evidence for the presence of these particular trades at those locations in the city at this period.

The large amount of oak bark needed in the vegetable-tanning process had to be transported from the surrounding countryside. Tanning and tawing (the preservation of skins with alum) may have been undertaken in the countryside as well as in urban settlements in the Anglo-Norman period. In the *Assize of the Forest*, a charter dated to 1184, tanners and tawers were ordered to dwell within a borough which implies that both these leatherworking trades were being conducted in forest areas in rural situations (Cherry 1991, 301). Such locations are less likely to be the subject of intensive archaeological investigation.

More direct evidence for the location of the leather crafts practiced in the later 11th and 12th century may potentially be gained from the study of leatherworking waste. For the most part this is found in secondary deposits and cannot reliably be used to exactly pinpoint the locations of the leatherworking activity. Leather waste from repairing shoes had been tipped into the moat at Oxford Castle for example and while it is likely to have come from the precincts of the castle it could also have been thrown in from the settlement outside. At late 11th and 12th century Coppergate, York waste leather was recovered from large dumps and pits at the rear of the tenements and may have been part of rubbish collected from elsewhere in the city and deposited there to raise ground level to prevent flooding from the river nearby; a similar situation with the large scale collection of urban waste is seen in the medieval Thames-side reclamation dumps in the city of London (Grew and de Neergaard 1988, 1). By contrast, leather waste from earlier Anglo-Scandinavian contexts at this site in York, occurring immediately behind the buildings and in occupation floors within them, indicate that the buildings may have been used as workshops. If this interpretation is correct, the small quantities of leather recovered from the occupation floors suggests that the leatherworkers kept their working areas relatively clean, even if they did not go far from their back doors before depositing the rubbish. Although no 12th-century workshop site has been recognised so far in England, other than the

possibility of a backyard of a cobbler's workshop at the rear of plot 16 at 1–2 Redcliff Street, Bristol (Mould 2011) there is no reason to suppose that the Anglo-Norman leatherworkers were any less concerned with removing unwanted debris from their working environment than their predecessors.

Figure 9.2: 15th-century casket (top) with pieced leather lining (bottom), British Museum 1897. AF3116. (Photo by E. Cameron).

Who was leatherworking in the Anglo-Norman period?

At present there are few ways of knowing who was engaged in leatherworking in England at this time, nor the numbers of people involved, though leatherworkers were amongst the earliest trades to set up specialist trade guilds as the medieval period progressed. Craftsmans' guilds were first mentioned in the Pipe Roll of 1130 and by the later 12th century permission had been granted to the cordwainers (initially the name used by workers of imported fine goatskins from Spain but soon used to denote all shoemakers) of Oxford to form a craft guild (West 2011, 205).While evidence of the gender of those working in the leather trades in the medieval period is limited, the majority of leatherworkers named in documents are male, but occasionally females are also mentioned. Alice and Agnes le Glovaire are named in a medieval document forbidding those not living in Malmesbury, Wiltshire from selling horse skin gloves in the town (Cherry 1991, 316 quoting V. C. H. Wilts. iv. 236). Women were actively involved in glove-making in this instance and are likely to have been similarly employed in aspects of other branches of the leatherworking trades. There is no reason to think that the situation differed in the Anglo-Norman period.

The changing tastes of the customer

In England, the quantity of late 11th and 12th century leatherwork is relatively small, yet studies of its technology and style can still reveal something about those who made and used it. While it is not possible to generalise from a statistically small sample, it is nevertheless worth considering whether the changes we observe in the leatherwork are in any way a reflection of the changes that the wider society was undergoing at this time.

In a previous study of Anglo-Scandinavian leatherwork from York, certain features of the shoes and knife sheaths led us to suggest that two traditions of shoe and sheath-making were being practiced simultaneously and that these traditions might reflect the Anglian and Scandinavian communities present at that time (Mould *et al.* 2003). We were aware then, as now, that aspects of leatherworking technology and decoration could reflect the cultural traditions not

only of the leatherworkers but also of their customers. In this section we highlight certain changes in leather assemblages in England at the end of the 11th century and in Dublin at the end of the 12th century, which might have been brought about by Norman influence on the markets. In England we see a trend towards brightly coloured footwear made in fine leathers. In Dublin we see new products and designs.

Changes in English footwear

The appearance of shoes and the leathers in which they were made change in the second half of the 11th and the 12th century. At this time closed shoes of ankle height or just above (resembling what we would call ankle boots today) were popular using distinctive cutting patterns (primary cutting pattern Family J, Volken 212, 92). People appear to show a preference for highly colourful footwear decorated with embroidery, applied and inserted pieces and thonging in contrasting colours (Figure 9.3). Embroidered decoration in the form of stripes running vertically down the shoe vamp from the throat to the toe and around the ankle (on topbands attached to the top opening of the shoe), popular throughout North Western Europe in the 12th and 13th centuries (Walton Rogers in Mould *et al.* 2003, 3343–4), also appears on English footwear. Where the embroidery thread survives it has been found to be of silk. Better preserved examples show the use of contrasting colours, such as a shoe from Seal House, London with an embroidered toe stripe comprising a line of red, white and of green stitching (Pritchard in Grew and de Neergaard 1988, 77). While nothing found in England so far can compare to the beautiful embroidery seen on shoes from Bergen (Larsen 1992, 31 Pl. 1 for example) there is no doubt that there was an increased interest in shoe decoration. Very closely-spaced thong-slots along the top edge of some shoes, and interlaced and 'chequer board' thonging on others, suggest that thongs of contrasting colours were used, not to fasten shoes but to decorate them. Some shoes have holes cut out, perhaps to show the colourful hose worn beneath, or filled with a separate piece of leather, presumably of a contrasting colour. Others are decorated with applied pieces (appliqués) in decorative shapes (Mould 2010a). Though the shoes and their appliqués and small inserts are all the same rather dull brown colour when found now, they are likely to have been of bright,

contrasting colours originally. The apparent desire for highly colourful shoes at this date, a feature particularly seen in the examples from notably high status sites such as the moat around Oxford Castle, may perhaps be regarded as a cultural indicator. A love of colourful and exuberant decoration can be seen in Romanesque architecture of the same period.

Technological changes also took place at this time. The earlier use of leather thong and then wool to join shoe soles to their uppers is replaced by the use of a thread made of a vegetable fibre, usually of flax (linen). After a brief period of experimentation with seam types, the use of an edge/flesh seam quickly becomes the standard method of lasting construction through much of North West Europe and continues throughout the entire medieval period (Goubitz *et al.* 2001, 91). The most notable occurrence at this period, however, is an increase in the use of finer skins for shoemaking, generally of sheep/goatskin. Previously up to the mid 11th century, and again from the mid 13th century onward, English footwear was made predominately of calfskins and cattle hides. In the later 11th century and the 12th centuries the use of sheep/goatskin and occasionally deerskin to make shoe uppers increases significantly throughout England at sites of both moderate and of high status (Grew and de Neergaard 1988, 44; Pritchard 1991, 222; Mould *et al.* 2003, 3266; Mould 2010a; Mould 2010b). This increase in the use of sheep/goatskin echoes the evidence of animal bone data from English cities, such as Oxford, Lincoln and Beverley, for an expansion in the numbers of sheep being reared at this time when their wool and also manure for the widening area of land under cultivation came to be of as much importance as their milk and meat (Sykes 2007, 36, 39).

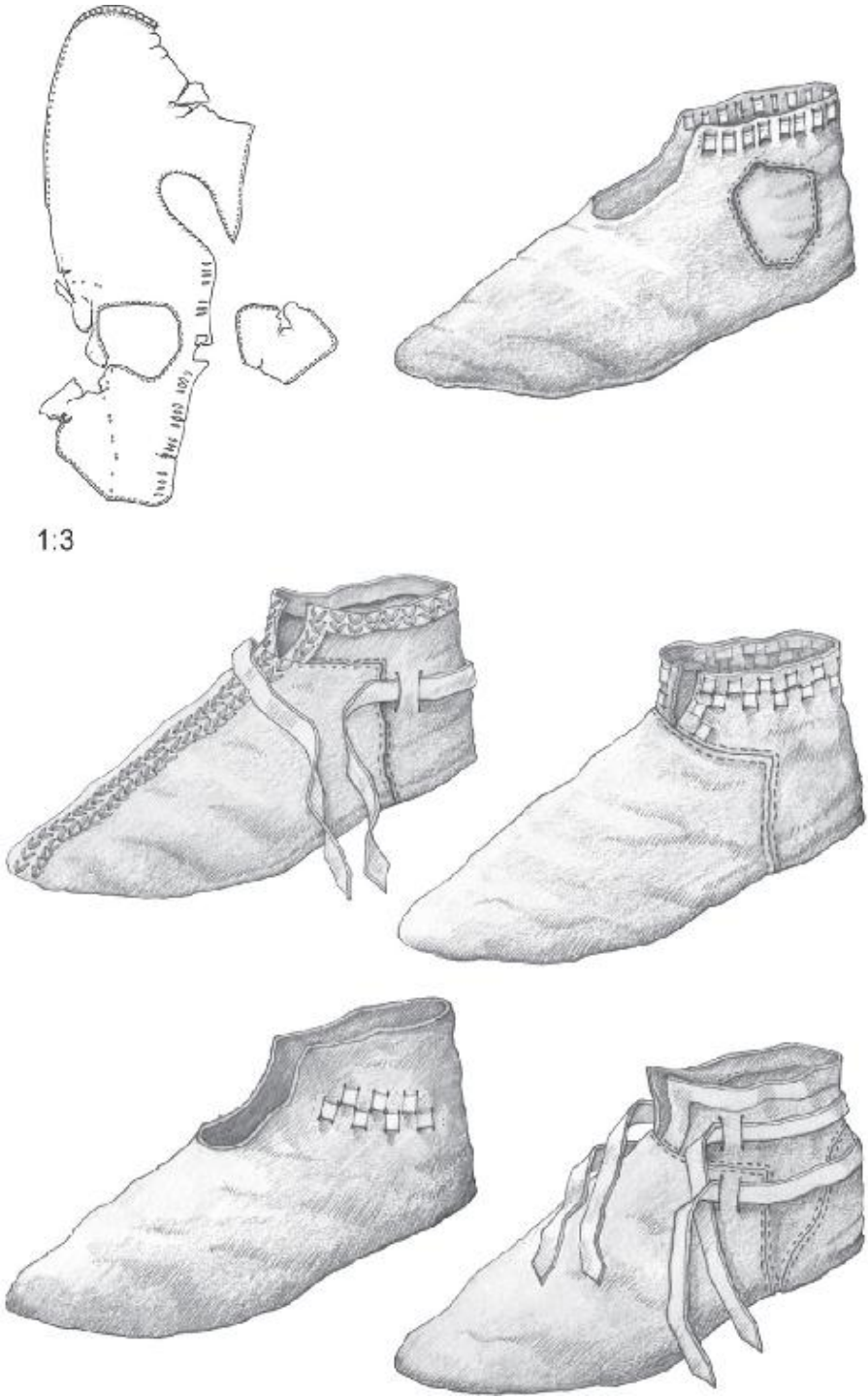

Figure 9.3: Late 11th and 12th-century shoes from Oxford Castle: (top) shoe with decorative insert and reconstruction, (below) reconstructions of other shoe styles found.

(Drawing by Q. Mould and J. Anderson).

New products in Dublin

Excavations in Dublin have yielded a great deal of leatherwork dating from the 10th to 13th centuries, of which the majority is from post-conquest deposits of the late 12th-century or later. The sequence is almost continuous, except for a relatively barren zone in the mid/late 12th century when archaeological deposits are scarce, providing an opportunity to study the changing styles of knife sheaths through time.

Dublin's pre-Norman sheaths are strongly influenced by Anglo-Saxon and Anglo-Scandinavian styles. In fact, they are so similar to the types of sheaths found in York of the same date that the entire assemblage could have been imported from within the Viking trading network. Among these earlier sheaths is a type with a gradation on one edge in which there is normally one or more holes that held metal rivets or leather thongs for the attachment of suspension straps (Figure 9.4a–b). The positions of the holes indicate that these sheaths were designed to be suspended from one edge almost horizontally from the belt. Similar evidence on other Viking period sheaths – most notably those of the single-edged weapon-knife or 'seax' – suggests that the wearing of knives at this angle may have been a universal feature of northern dress (Figure 9.4c–d) (Cameron and Mould 2011, 106–107).

In 11th-century Dublin a new sheath type makes its appearance (Cameron 2007, 27–31). This so-called 'winged' sheath has a pronounced gradation on one side, metal edging strips and rivets, and plentiful tooled decoration consisting of panels of abstract motifs such as hatching, scrolls and plaits (Figure 9.4e–f). Although clearly different from the other sheaths, the 'winged' form remains totally northern in style, indicating that Scandinavian cultural traditions were still popular in Dublin at this time. Twenty-one of these 'winged' sheaths were found in 11th century contexts at Christchurch Place, Fishamble Street and Winetavern Street, Dublin. An additional 116 examples were found in secondary deposits at Wood Quay where urban refuse had been deposited behind wooden revetments dating from the late 12th and early 13th centuries. This frequency of occurrence implies an unusual degree of popularity, bearing in mind that the next most numerous type of sheath in Dublin was represented

by only 19 examples. Outside Dublin 'winged' sheaths are a rarity. The few that have been found in London are from late12th-century contexts or later, so their arrival there, whether as commodities of Anglo-Norman trade or as personal possessions, is likely to have post-dated the conquest of Ireland. Considering the large numbers of 'winged' sheaths in Dublin – a total of 137 – and their scarcity elsewhere, it is probable they were produced in the settlement, presumably as an adjunct to a knife industry. The type of blade that would have fitted the 'winged' sheath is not associated with a specialised craft and could have suited a variety of everyday purposes, such as cutting food at table. By 1170, the 'winged' sheath, having been in continuous use in Dublin for the previous 170 years, still represented the popular choice, possibly worn with local costume as part of everyday apparel.

From the late 12th century, coinciding with the arrival of Anglo-Normans in Dublin, a 'tapered' sheath designed to be worn vertically, rather than horizontally, appears in the deposits at Wood Quay and High Street (Cameron 2007, 33–35) (Figure 9.5a–b). This style is also found in England in Anglo-Norman contexts (Mould *et al.* 2003, 3385–3390). These were quite high quality products decorated in a figurative style, which includes birds and mythical beasts similar to depictions in 12th-century European manuscripts, using a wider range of techniques than those used on 'winged' sheaths (Cameron 2007, 52–54). But while the style of *decoration* quickly became popular and appears on other types of sheaths of this date in Dublin, the *tapered sheath* seems to have been far less popular and is only found in small quantities. This suggests that there might have been two styles of dress in Dublin at this time: a Scandinavian one associated with the 'winged' sheaths was in the majority, while a European one associated with the wearing of narrow, tapered sheaths was in the minority. In the course of time these differences merged – gradually winged sheaths were made longer and thinner in response to the new fashion – but the general population continued the tradition of wearing horizontal sheaths at least into the early 13th century (Figure 9.5c).

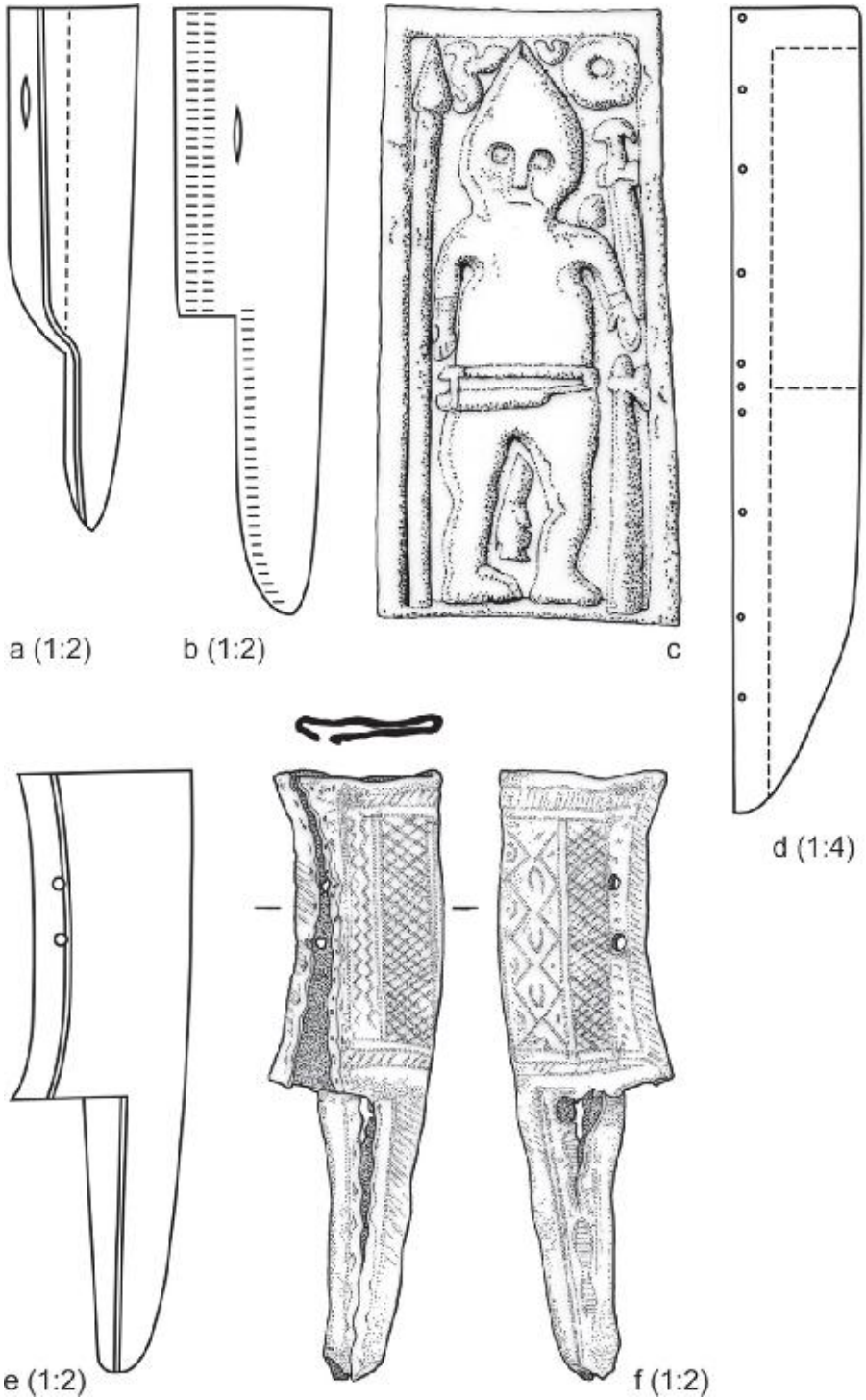

Figure 9.4: Styles of sheaths from 11th-century Dublin: (a) convex (b) stepped (c) style of wearing the straight-edged sheath, Middleton, North Yorkshire (d) straight-edged (e)

winged (f) abstract style of decoration on DLS70. (Drawing: a, b, d, e, f by E. Cameron and J. Anderson; c: after Hawkes 1989, 81).

It would seem that the arrival of Anglo-Normans in Dublin did not have an adverse effect on the activities of the town's sheathers. On the contrary, they continued to supply local markets, adapted gradually to changing fashion and – judging by the occurrence of winged sheaths in London from this date – explored wider markets.

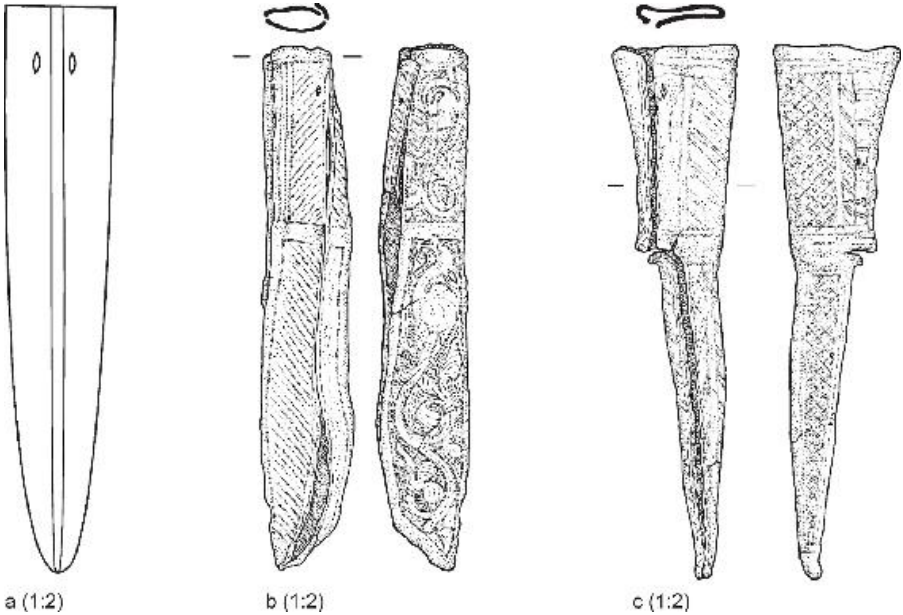

Figure 9.5: Styles of sheaths from 12th and early 13th-century Dublin: (a) tapered (b) figurative style of decoration on DLS226 (c) winged DLS165. (Drawings by E. Cameron and J. Anderson; after Vukšić in Cameron 2007, 34, 101).

Conclusion

While the raw material, animal skins, was readily available, the product, leather, was expensive to produce. It was the ease with which it could be reused and recycled that made leather available and affordable to all but the very poorest members of the community. Of the many actors engaged in the leather trades it was the tanner who was at the top of the financial and social scale and the cobbler who was at the bottom. However, it is only in the work of those actors in between, who made saleable goods from the leather, that possible responses to changing markets may be observed. Changes in certain aspects of leatherworking technology and decoration in England and Ireland in the later 11th and 12th centuries are evident. This resulted in products noticeably different from what had been in use before. In Norman England, tapered sheaths worn vertically began to replace older styles of sheaths which had been worn semi-horizontally. This new style was introduced into Dublin in the late 12th century bringing with it a more figurative style of decoration which also spread to a local type of sheath. External influences on the English market resulted in more highly decorated and probably more colourful footwear and a preference for finer leathers. The development of the Anglo-Norman leather industry seems inextricably linked to that of towns and appears to gain momentum as they evolved responding to the growing market they provided. All aspects of the leatherworking trades prospered as domestic, ecclesiastical and military demand for their products expanded.

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Chapter 10

Tracing the nameless actors. Leatherworking and production of leather artefacts in the town of Turku and Turku Castle, SW Finland

Janne Harjula

According to present knowledge, the town of Turku was founded in the late 13th century. It became the largest of the six medieval Finnish towns, and the largest town in the eastern part of medieval Sweden (*Österland*; *Partes orientales*). Moreover, it was the centre of the Diocese of Turku, covering roughly the area of present-day Finland (Hiekkanen 2001, 627; 2002, 157–177; 2003, 42–48; 2007, 189, 191). The medieval concept of 'Finland' must be understood primarily as a geographical area covering the eastern part of Sweden (on the different names, concepts and their problems concerning the area of medieval Finland, see Heikkilä 2010, 18–20).

At the end of the Middle Ages, the town formed an area of approximately 700 × 100–300 metres, mainly on the southeast bank of the Aura (Fi. Aurajoki) River (Figure 10.1). There is no medieval information on the population, but according to cameral sources of the mid-16th century it can be estimated at the time to have been between 2,000 and 3,000 (Kaukiainen 1980, 105). Even if Turku is the modern Finnish name of the town, the official (Swedish) name in the Middle Ages was *Åbo*. This name was also the basis for the German *Abo* and the Latin form *Aboa*, in the Middle Ages mostly occurring in the form *Aboensis* (on the names, see Pihlman and Kostet 1986, 7–9).

This article tries to piece together a small part of a large puzzle of medieval crafts in Finland. It deals with leatherworking and the manufacture of related artefacts in the town of Turku and the nearby Turku Castle, focusing on the Middle Ages (*c*. 14th-early 16th century). It must be taken into account that the archaeological material in Turku has accumulated over a period of more than a hundred years, and evidently the quality of documentation has varied considerably in the course of time. Systematic fieldwork (i.e. archaeological excavations and surveys of modern methods as they are understood today) have been carried out in Turku mainly from the 1980s onwards.

Despite the varying level of documentation of archaeological material, given the scarcity of written documents, archaeology provides the key evidence that may be used to answer questions related to medieval crafts in Finland in general. In this paper it is asked, what kind of material remains related to leather crafts there are available in Turku, and can this evidence help us in trying to distinguish the individual trades through the vast archaeological mass material, when supplemented with the written sources available? The remit of this paper is not to provide a complete picture of leather crafts in medieval Turku, which would only really be possible in theory. It is however, important to keep in mind the question covering the whole subject – what kind of people-and-things connections once formed the actor-network of leather trades in medieval Turku?

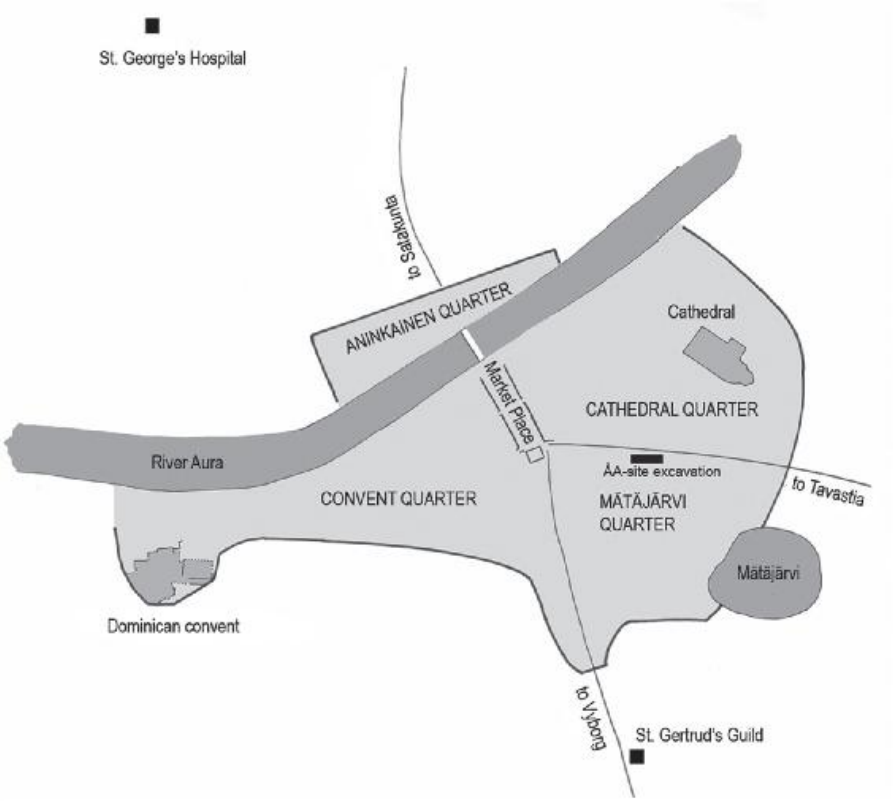

Figure 10.1: Map of Turku. At the end of the Middle Ages, Turku consisted of four quarters/parts: The Cathedral quarter, Convent quarter, Mätäjärvi quarter and Aninkainen quarter. The Cathedral quarter reached from the Cathedral to the Market Square. It was outlined by the River Aura (Fi. Aurajoki) and the road from Tavastia (Fi. Häme), which in the town area was called Hämeenkatu Street. The Convent quarter reached from the Market Place to the Dominican convent. The Mätäjärvi quarter was located between the area of Hämeenkatu Street and Karjakatu Street, the road from Vyborg. The quarter got its name from the shallow Lake Mätäjärvi, which already during the Middle Ages was only a pond, badly polluted by the settlement. The Aninkainen quarter was located on the western side of the River Aurajoki. St George's hospital (Fi. Pyhän Yrjänän hospitaali) and St Gertrud's Guild House (Fi. Pyhän Kerttulin kiltatalo) were located outside of the town. The Åbo Akademi main building site (ÅA-site) excavation (1998) can be considered, for the time being, the largest and most important urban excavation in the town area of Turku. In the Middle Ages the excavation area belonged to the Mätäjärvi quarter as Hämeenkatu Street ran on the northern side of the area. Since the beginning of the 18th century the area was part of the Cathedral quarter as the new course of Hämeenkatu Street passed the area on its southern side (The map according to Harjula 2008a, fig. 1).

Historical background of medieval crafts in Finland and the town of Turku

To start with the historical sources, there are few written sources on medieval craftsmen in Finland. There is not enough information from any single year to indicate even general figures of the number of craftsmen in a locality at any given time. No tax records, town council minutes, or 'notebooks', have survived from Turku (Kallioinen 1997, 87; 2000, 26), or from any of the Finnish towns (Himanen 1971, 2, 6; on the medieval archives of Finland, see e.g. Pirinen 1947). Besides, the information contained in the few sources on crafts or craftsmen is limited and one-sided; the sources generally mention only craftsmen of higher status. The information is also problematic in terms of source criticism, as finding craftsmen from written sources is primarily based on the names of artisans only; for example, a man named *Thetmarus Sutor* was possibly a shoemaker. However, such artisan names could be inherited and changed to family names, regardless of whether the offspring continued his parent's profession or not. In Stockholm, for example, some merchants had artisan names (Lindberg 1989, 41). Similarly, in mid-16th century Turku, many burghers with artisan names took part in foreign trade. On the other hand, an artisan could have a patronymic name without any indication to a profession. Thus, the artisan name did not necessarily mean that the person in question practised the profession his or her name would indicate and, on the other hand, many artisans with a patronymic names can be left unrecognised (on the problems and source criticism in identifying the craftsmen in Turku and medieval and Early-Modern Finland in general, see Himanen 1971, 11–26; Heino 1985, 37–45; 1997, 22–25; Kallioinen 1997, 87–88; 2000, 217–218).

The names of foreign origin that were common among the burghers of Turku suggest that in the early stages of the town (14th century), its community of merchants and craftsmen was made up predominantly of Germans. During the 15th and particularly the 16th century, the numbers of Finns and Swedes grew, and thus the burghers became markedly 'domestic' (Ruuth 1916, 22–24; Himanen 1971, 66–67; Kallioinen 2000, 137–140).

Throughout the Middle Ages and the 16th century, Turku had

more craftsmen and artisans than any other town in Finland. Of the Finnish towns, Turku also had the greatest number of different crafts occupations (Himanen 1971, 47). Although there were more craftsmen in Turku than in other medieval towns in Finland, their proportion of the town's burgher community was small, according to written sources. Fifty-five craftsmen are known from the year 1571, amounting to some 16 per cent of the total burgher population of Turku. This is a small figure in comparison with Stockholm, for example, where approximately a quarter of the burghers were craftsmen in the Middle Ages, and as much as a third in the 16th century. In medieval Lübeck, Hamburg and Stralsund, craftsmen would at times form the majority of the burghers (Kallioinen 1997, 89–90; 2000, 219).

Were crafts then of lesser importance in Turku than in many other European towns? According to C. J. Gardberg (1971, 300), craftsmen are mentioned rarely in sources as a result of their low status relative to merchants. As mentioned above, there are also problems in recognising craftsmen by their names. If the small number of craftsmen was a reality in Turku all the same, the partial reason for this may have been the self-sufficiency of the local population. In 1571, for example, not a single brewer or baker is known from Turku. Professional craftsmen were in fact brought in from elsewhere when necessary. For example, in 1510 a glazier and a potter were promised to be sent from Tallinn, as they were not to be found in Turku (Kallioinen 1997, 90–91; 2000, 219–220).

When it comes to the organisation of craftsmen, one must use analogies from towns with better-preserved records. In medieval Stockholm the apprentice-journeyman-master system was rare. Most workshops had only a master craftsman assisted by his family, though some also had one or two apprentices. There may have been a similar situation in Turku, as no medieval journeymen or apprentices are known from the town. Presumably most of the households consisted only of a master craftsman and his family (Kallioinen 1997, 94–95; 2000, 220).

Craft corporations known as guilds (Fi. *ammattikunta*) were already active in some parts of Europe in the 12th century. The first guild known from Stockholm is from 1356, and the next one dates from the 15th century. However, no medieval or 16th-century guilds are known

from Turku (Kuujo 1981, 164–165), and guilds were not established in Finland until the 1620s (Ruuth 1916, 42; Himanen 1971, 85). After the issuing of the Corporation Decree in Sweden in 1621, the Corporation of Shoemakers was the first guild to be founded. According to Folke Lindberg, it was completely natural for the guild system to be quite undeveloped in the towns of Sweden other than Stockholm. He maintains that there were so few craftsmen of the same occupation in these towns that there were no grounds for their becoming organized (Lindberg 1989, 69–70).

In Finland, the medieval town guilds (Fi. *kilta*) appear to have been associations of the leading stratum of the urban population, and no signs of craftsmen's guilds have survived in the country. This lack of data, however, does not necessarily exclude their existence, but may signify their smaller size and wealth compared with the guilds of the leading burghers and the class exempted from taxes by providing service to the crown (Ruuth 1916, 42; Himanen 1971, 85).

Documentary evidence of leatherworking in medieval and early modern Turku

There are only three references to shoemakers in medieval Turku. *Thetmarus sutor* is mentioned as early as the year 1336 (REA 86), while there is a reference to two shoemakers (*Hollingher skomakare* and *Albrecht scomare*) in the same document in 1425 (FMU II 1783). A beltmaker (*Claes beltare*) is mentioned in 1347 (REA 127) and *Laurens svärdslipare*, possibly a sword-polisher, appears in 1488 (FMU V 4187). The first references to tanners in Turku can be found quite late (i.e. in the documents of the 16th century). Other new leatherworking trades of the 16th century not found in documents of previous centuries are pouch makers, chamois makers, saddle makers and mitten makers. The old professions – shoemaker, sword polisher and beltmaker – still occur in the 16th century (Kallioinen 2000, Appendix 1).

Besides towns, castles were important employers of artisans. In 1562, there were three shoemakers working at Turku Castle at the same time. In 1578 the number of shoemakers had grown to ten (Himanen 1971, 160, 175). The occurrence of professional shoemakers in the countryside in Finland at least from the 15th century onwards is certain. However, the only medieval reference to

such a shoemaker in SW-Finland is from Muurla parish in 1467 (FMU 3328).

Material remains of leatherworking and leather artefact manufacture

Overall, the source value of the historical documents described above can be considered very limited. Written sources do not provide us with much information on practicing the trade, or detailed information on craft products. Moreover, written sources do not permit the placing of craftsmen on a map of the town of Turku (Kostet 1989, 32). The situation differs completely from those European towns where problems related to craftsmen and artisans are elucidated more broadly and in greater detail by written documents. Studies of material remains (i.e. archaeology and the study of non-archaeological objects in museum collections) therefore have a primary role in investigating crafts in medieval Finland.

Structural evidence

In Turku, sparse documentary information is complemented considerably by the actual archaeological remains of leatherworking and shoemaking. Of the structures used in leatherworking, the most common observations are related to tanning. Based on the archaeological observations from nine sites in Turku, tub-like constructions of round or oval shape often seem to have been used in tanning (Tanning tubs have been noticed on sites 1, 2, 7, 8, 9, 10, 11, 12 and 13 in Figure 10.2). These tubs were constructed using a stave technique, and their typical diameter is *c*. 80–150 cm. Partly buried in the ground, the tubs were of fixed in place. This is natural, given the long tanning process. The tubs found in Turku date to between the 15th and 17th centuries. Tubs from two sites, the Åbo Akademi main building site (ÅA-site from now on) and the City Library site are certainly medieval (Figure 10.3). More widely, tubs have been found in two quarters in Turku: the Mätäjärvi and Aninkainen quarters. The location of the tubs here in the outskirts of the town area was natural, given that the tanning process would have produced an unpleasant smell. It must be noted that the function of these large tubs is open to interpretations other than tanning (Harjula 2008a, 135–136). In this regard, it is interesting to note the presence of an additional structural

indication of leatherworking, found at the Vähä-Hämeenkatu 13b site, originally belonging to a strand area of Lake Mätäjärvi. The find is a plank covered with a thick layer of hair, and is interpreted as a hide-scraping beam (Harjula 2008a, 136–137).

Figure 10.2: The archaeological sites mentioned in the text placed on the present street network. (1) The Åbo Akademi main building site excavation (1998). (2) The City Library site excavation (2003). (3) Rettig's slope site excavation (2001). (4) The Österblad site excavation (1999). (5) The Vähä-Hämeenkatu 13b site excavation (1975). (6) The Old Great Market Square site excavation (1986–1989). (7) The Uudenmaankatu 6 site excavation (1986–1988). (8) The Julin's plot excavation (1983). (9) The Linnankatu site survey (1950). (10) The Hämeenkatu site survey (1948–1949). (11) The Vähä-Hämeenkatu survey (1970). (12) The Uudenmaankatu 5 survey (1971–1972). (13) The Lönnrot's Park survey (1983). Turku Castle is located at the mouth of the Aura (Aurajoki) River, roughly three kilometers downstream from the medieval town of Turku.

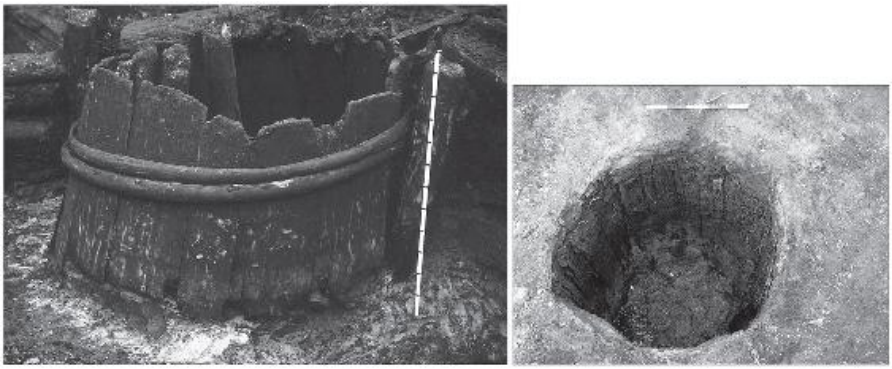

Figure 10.3: A medieval tanning or dyeing tub at the Åbo Akademi main building site (left) and at the City Library site (right) (Harjula 2008a, fig. 105). Of the possible tanning tubs and other structures possibly connected to leather working at the ÅA-site, see Seppänen 2012, 342–356, 835–837, 862–863, figs 101–102.

Osteological and macrofossil evidence

Zooarchaeological studies permit conclusions on bone and horn-related crafts. The practice of certain crafts – for example, the manufacture of bone artefacts, slaughtering and leatherworking – are generally reflected in the osteological material of the places of activity. This also holds true in Turku (Tourunen 2002, 99; 2003, 371–372; Harjula 2008, 137). When skinning slaughtered animals, the bones of the lower limbs could be left attached to the hide. These bones then accumulated at those sites where treatment of hides was carried out (Thomson 1981, 162; Vretemark 1997, 59; for the possible reasons for leaving the bones attached, see Serjeantson 1989, 139, 141). Some kind of leatherworking may thus be indicated by large numbers of goat bones from the animal's lower extremities, recovered during the excavation of the Rettig's Slope site (Auli Tourunen, personal communication).

Like limb bones, horns could be left on the skin after butchering. According to a tradition that in England can be traced back to the Middle Ages, tanners bought hides that still had horns attached. The tanner's first task was then to cut out the horns, which he would pass on (sell) to hornworkers either as complete horns or as outer sheaths (Thomson 1981, 162; Armitage 1990, 84). The horn core is the hard, bony inner portion of an animal's horn, around which is wrapped a tight keratinaceous sheath, which could be removed for hornworking. Typically, hornworkers and tanners worked near each other in the part of the town devoted to the smellier craft activities (Serjeantson 1989, 139; Heege, Volken and Volken 2002, 294).

As horns provided no meat, it is not probable that horn finds represent the remains of meals. Rather, horn was a valued commodity in its own right. When concentrations of horns or their components have been found on archaeological sites, they have often been interpreted as being connected to tanning, horn-working, butchery, or combinations of these activities (Serjeanton 1989, 186, 189). In Turku, the horn assemblages at the ÅA site, the Österblad site and the Vähä-Hämeenkatu 13b site may have a connection to the leatherworking and hornworking activity in these areas, although more definite conclusions cannot be drawn at present (Harjula 2008a, 137).

Besides osteological material, plant macrofossil evidence may also be connected to leatherworking. It is known that certain plants, parts of plants or substances manufactured from plants were used in the tanning process. For instance, altogether 13 kg of hazel nutshells have been recorded at the ÅA-site excavation. These large quantities suggest a special use of nutshells in addition to the use of the shells themselves as food (Lempiäinen 2003, 332). Nutshells from the common hazel (*Corylus avellana*) are known to have been used in the tanning and dyeing of leather and textiles (Lempiäinen 2003, 329, 332; Kirjavainen 2004, 37), while another plant used in tanning and found at the ÅA-site (Terttu Lempiäinen, personal communication) is the bearberry (*Arctospathylos uva-ursi*), whose shoots were used (Lempiäinen 2003, 333). From the later historical period, Carl Linnaeus writes that a large amount of bearberry leaves and shoots were collected from northern Finland and sent to the tanners of Stockholm, who used bearberry instead of sumach (*Rhus* sp.) in tanning (Linné 1991, 53).

Some of the plants used in the tanning process – hazel and bearberry included – were also used when dyeing leather and textiles (Lempiäinen 2003, 329, 332–333). Both tanning and dyeing thus employed the same materials: the bark of trees and shrubs, leaves of plants, and nutshells. Through archaeological methods alone, it is difficult to precisely define the activity in which the substances recovered at Turku were being used. Indeed, the possibility of exploiting the same ingredients and structures for two different purposes may have resulted in the carrying out of two activities (tanning and dyeing) side by side. Another possibility is that tanning and textile working succeeded each other chronologically (Harjula 2008a, 137–138).

Tools

Of the tools found, awls and creasers had a wide use in leatherworking, while awls also had a role to play in woodworking. Shoemakers' knives, on the other hand, were used solely in shoemaking. Of the two basic types of shoemakers' knives (the type with a sickle-formed blade, and that with half-moon shaped blade), only one example of the latter occurs in the archaeological material in Turku. The knife was found in a late-14th century cultural layer at the

ÅA-site. Unfortunately, archaeological evidence for textile- and leather-working is in many cases identical; this applies to shears, spindles, sewing-needles and thimbles, all of which which may have been used not just in leatherworking and shoemaking, but also in textile manufacture (Harjula 2008a, 140–141).

One of the basic tools of a shoemaker is the last. There are seven lasts from archaeological contexts in Turku. Four can be considered medieval by their find context and morphology, and the rest post-medieval on the basis of the absence of distinctive left/right foot-shaping. In addition to the two lasts from the ÅA-site dated to the late 14th and 15th centuries, a last dated to the 14th century was found in the Old Great Market Square (Figure 10.4), while a single medieval last is known from Turku Castle. One explanation for this low frequency in excavated contexts may be that wooden lasts easily ended up as firewood. Nonetheless, they must have been common; the use of lasts is visible in shoe soles. In medieval turnshoes, the treadsole was fixed onto the last with two or three wooden pins or iron nails. These left their marks, peg or nail holes, on soles and lasts (though it must be noted that some soles show no evidence of nail holes). It is probable that such soles relate to shoes made without the last. On the basis of the existence or non-existence of nail holes in soles, the percentages for shoes made with and without the last would be 94 and 6, respectively. Thus, the use of the last would have been very common, although not strictly ‘standard’ in medieval Turku (Harjula 2008a, 138–140).

Figure 10.4: Lasts from the Åbo Akademi main building site and the Old Great Market Square in Turku. Top: Adult size, l. 26.5 cm. 15th c., material Alnus *sp; Child size, l. 16 cm, late 14th c., material* Salix *sp. Below: adult size, l. 26.5 cm*, c. *1350-beginning of the 15th c., material* Pinus sylvestris *(Harjula 2008a, fig. 107)*.

From the ÅA-site, four possible templates for cutting shoe soles (shoe soles with no stitch holes on the edges) were found. It is, however, possible to interpret these as unfinished rough-outs of soles (Harjula 2008a, 147).

Leather production waste

The processing of hides and skins, and the making of leather goods produce distinctive types of waste that, in some cases, allow individual trades to be distinguished (e.g. Mould *et al.* 2003, 3245). In Turku, the strongest archaeological evidence of leatherworking is waste leather itself. At the ÅA-site, a large quantity (70 litres) of tissue-like waste leather, interpreted as currying waste, was found within late-14th century/early-15th century layers (Figure 10.5). In currying, vegetable-tanned hides were worked into leathers with various properties, and suitable for manufacture into a range of finished goods (Thomson 1982, 147–149; Serjeantson 1989, 135; Mac Gregor 1998, 16; Mould, Carlisle and Cameron 2003, 3222). Currying was a necessary process between the tanning and making of artefacts. One phase of this complicated process was paring the skin down to the required thickness using the currier's shaving knife. As a by-product, shavings of leather (known as currying waste) were formed. It is probable that at the ÅA-site the waste was dumped onto the open areas of the site from the nearby plots, at least partially outside the excavation area (Harjula 2002, 127, 130; 2008a, 141–142; Harjula and Jokela 2003, 257; Harjula and Hiekkanen 2006, 530).

Another category of production waste from leatherworking is the remains of leather cutting. In archaeological literature, these are referred to as offcuts. Unlike currying waste, offcuts are numerous in Turku. They have been found in some quantity in almost every excavation and survey in which layers of organic content have been preserved. According to Mould *et al.* (2003, 3245–3246) offcuts can be divided into three main groups, each with distinctive characteristics. *Primary waste* derives from the initial trimming of hides during and following tanning, and from currying to remove unusable parts of the skin or hide. The term *secondary waste* refers to the offcuts from cutting out 'pattern pieces' of artefacts. The final trimmings of the pattern pieces during assembly into finished goods are called *tertiary waste*. Recovery of secondary and tertiary production waste is thus

indicative of the presence of manufacturing trades.

Finds of leather production waste alone, without tools or structures related to leatherworking, do not permit any definite conclusions regarding professional leather artefact manufacture *in situ*. There is the risk that the recognition of large quantities of offcuts will make the whole medieval town appear to be one large shoemaker's or cobbler's shop (Tuovinen 1989, 133), and it must be noted that waste leather could have been subsequently transported with earthmoving, or may have been deliberately used (for example to dry moist soil). There are however, two sites or areas in which leather production waste has been found together with tools and/or structures connected to leatherworking or artefact manufacture, and where professional manufacture might therefore be fairly confidently suggested.

Figure 10.5: Currying waste from the Åbo Akademi main building site in Turku (Harjula 2008a, 110).

The first is the ÅA-site, where the total number of offcuts exceeds 50,000 pieces. It is possible to identify all the different categories of offcuts from the material even if the different types in most cases occur mixed together. The occurrence of hide edges can be interpreted as primary waste from the initial trimming of hides. Moreover, their occurrence together with offcuts from cutting out pattern pieces and trimmings (secondary and tertiary waste) suggests the probability that artefact makers used complete hides when cutting patterns for artefacts. The only artefact type that can be identified from the offcut material at the ÅA-site is the shoe; numerous pieces deriving from the cutting of shoe-soles (so called intersectional cutting pieces, or secondary waste) have been recorded, and tertiary waste from trimming is also common, while the production of artefact types other than shoes has not been identified either at the ÅA-site or at other sites in Turku (Harjula 2008a, 142–147).

Besides the ÅA-site, another area with evidence of leatherworking and shoemaking that may be connected with a certain location is the strand area of the Lake Mätäjärvi (observations on sites 5 and 11 in Figure 10.2). It is suggested that the structural evidence (tanning tubs; hide scraping beam) and production waste (primary waste from hide preparation; secondary and tertiary offcuts from shoemaking) indicate the undertaking of professional shoemaking, with hide preparation included in the 15th and early 16th centuries.

Shoe repairs and leather reuse

Broken shoes could be taken to a shoemaker for repair. However, in the Middle Ages there were also special trades dealing with shoe repairs. In medieval and later England, for example, cobblers refurbished, repaired, and remade old shoes, before selling them on. Thus, besides undertaking repairs, cobblers also sold second-hand shoes (Grew and de Neergaard 2001, 89–90; Mould, Carlisle and Cameron 2003, 3347). In Germany, the job description of the cobbler was divided into two professions. A *Flickschuster* only repaired footwear, while an *Altmacher* bought used shoes, fixed them and sold them on (Metzger 2002, 144). There is no information on cobblers in medieval Sweden (Granlund 1982, 649). Thus, we are reliant upon the archaeological record to tell us about shoe repairs in Turku in the Middle Ages and the beginning of the Early Modern Period.

Shoes from archaeological contexts in Turku were most frequently repaired by the affixing of clump soles: additional pieces of leather used to patch a worn area of a shoe sole. Most of the shoes with a clump repair in Turku were repaired with a very coarse leather thonging (Figure 10.6). In only a few cases has the use of thread been documented. This suggests the probability that clump-soled shoes were repaired by the shoe users themselves. Another method of sole repair was resoling. Unlike clumpsoling, this was a demanding and time-consuming task, and was therefore probably carried out by professional shoemakers or cobblers in Turku.

Figure 10.6: Clump-soles from the ÅA-site. Late 13th c.–early 15th c. (The Museum Centre of Turku 21816:n2928 (left), 21816:NE2045 (right); Harjula 2008a, fig. 116).

On the basis of the large numbers of cut-down leather artefacts, it seems that all kinds of leather objects were repaired and reused when they had come to the end of their lives. On the other hand, a large number of shoes found at the ÅA-site were actually in quite good condition when discarded. Their condition would have well allowed their repair for reuse, but for some reason this was not frequently done. Instead, many shoes were discarded after only minor wear and not selected for refurbishment. The material clearly does not support the idea that there was any kind of shortage of leather or shoes. Rather, plenty of material was available for reuse, so much so that it was not fully exploited (Harjula 2008a, 148–150).

Sword-polishers in Turku?

Apart from the preparation of hides and shoemaking, the archaeological evidence from Turku related to other distinct leather trades is quite limited. However, it was noticed that the sword scabbard leathers found at the ÅA-site and Old Great Market Square were either cut, torn, or both cut and torn fragments, lacking both the mouth-end and the tip. It could be that these fragments are ones that were stripped from the wooden scabbard cores when the latter were to be reused. In some cases, reuse has been connected to a distinct trade, the work of the sword-polisher (e.g. Blomqvist 1938, 166–168; Bolstad 1991, 135). This craftsman cleaned and polished blades, and furnished them with handles and a scabbard. When the sword was furnished with a new scabbard, the old scabbard was discarded. At both the ÅA-site and the Old Great Market Square site, the sliced scabbard fragments were concentrated in certain areas, together with offcuts, possibly from shoemaking. An established and thus probably professional activity can be suggested, though whether this was the work of specialized sword-polishers' or other leatherworkers' is an open question (Harjula 2005a, 71–72). Shoemaking and scabbard making demanded at least partially different skills, but it is conceivable that both skillsets could have been handled by a single individual.

Tracing the origin of leather artefacts

On the basis of leather production waste (currying waste, offcuts), structures (tanning tubs, hide scraping beam) and tools (lasts, awls,

shoemaker's knives, creasers, templates or rough-outs of shoe soles) we know for certain that shoemaking and (probably) full-time manufacture of other types of leather goods took place in Turku from at least the 14th century onwards. Furthermore, the number and variety of leather artefacts found in excavations is very large. Besides shoes, archaeological contexts in Turku also preserve, for example, patten straps, mittens, belts, straps, bags, pouches, cases for wax tablets, sheaths, scabbards, slings and a number of unidentified leather objects (for leather research and the variety of medieval leather artefacts in Finnish excavations, see Harjula 2002; 2004; 2005a; 2005b; 2007a; 2007b; 2007c; 2008a; 2008b; 2009; 2010; Harjula and Hiekkanen 2006; Harjula and Jokela 2003; Harjula and Taavitsainen 2008; Taavitsainen and Harjula 2005).

Even if it can be suggested that the majority of these finds were locally manufactured, there is the possibility that particular artefacts or artefact groups were imported. We might therefore ask, whether there are any indications on artefacts themselves that would support the interpretation of local manufacture or import. Even if urban material culture was in general more or less uniform across the whole medieval Baltic sphere, distinctions may be visible in the selection of raw materials. For example, in the case of Turku's medieval knife sheaths, the exceptionally good preservation of sewing threads made it possible to analyse their materials. It was found that the prevalent material used in the stitching of knife sheaths was hemp. Thus, the usual assumption that the preferred thread material was linen, has been proven incorrect. The use of hemp for sewing threads may be an indication either of local sheath manufacture, of their import from the Baltic Countries or Russia. Import from Poland or Germany seems less likely, given that these regions were mostly flax cultivation areas in the Middle Ages (Harjula 2005, 70–71). However, these conclusions must, for now, remain speculative.

In Europe, stable isotope ratios of different elements (e.g. of strontium), have been used to determine the local versus non-local geographical origin of textile, leather and bone, in order to reconstruct migration and trade (see for example Carnap-Bornheim *et al.* 2007). The method is based on the fact that a local, geochemically determined Sr isotopic signature enters the food chain vial soil and groundwater, and ends up in archaeological materials such as bone,

teeth and skin. These kinds of natural scientific analyses will probably become more common, and eventually a routine part of archaeological artefact and material studies in Finland in the near future. Combined with more traditional archaeological methods, they will complement archaeological leather research, both in raw-material and artefact-level analysis, and will thus be of great help in tracing the nameless actors once involved in the chains of production and trade.

Conclusions

The kinds of division and specialisation that existed in the leather trade, and how these were handled in practice remain key questions in leather craft-research in Turku. On the basis of the sparse written sources and very rich archaeological material, some conclusions can be drawn.

Tanning was a common and essential task, but based on the parallels from other Nordic Countries, still not a separate trade in medieval Turku. In principle, shoemakers and other possible leather manufacturing trades tanned the skins they needed. Tanning was largely carried out on the outskirts of the town, or by the River Aurajoki, and may have seen cooperation with textile dyers, who could use the same facilities.

Currying was an essential task connected to both tanning and artefact manufacture, placed between these two processes and probably handled by a single person (though perhaps with assistants), who tanned the skins and made artefacts. Currying was not a separate craft in Turku in the Middle Ages. There are archaeological indications of currying only from one site in Turku.

Shoemaking was, besides tailoring, one of the oldest and probably the largest craft in medieval Turku. It is mentioned repeatedly in written sources, and well represented in archaeological material. It is suggested that besides manufacturing shoes, shoemakers also repaired them (i.e. acted as cobblers). On the other hand, based on the poor quality of some repairs identified, a kind of cobbling was also carried out on a non-professional, household level (clump-soling). One may ask who manufactured the one-piece shoes recovered in the town area and from Turku Castle, and which represent a shoemaking tradition different to that which produced turn-shoes? Such one-piece shoes may be seen to continue an Iron-Age shoemaking tradition (Harjula

2008a, 97–101). They may have been made in the countryside, and their occurrence in town and castle may therefore reflect the relationship between these sites and Turku's rural hinterland.

Shoemakers had to tan the skins they needed. The potential for overburdening the trade was thus considerable, and some kind of division of labour between preparatory phases (tanning, currying), shoe manufacture, selling shoes, repairing them and possibly even selling refurbished shoes might be suggested. Besides, even if there was no official journeyman-apprentice-master system, some kind of unofficial organisation and division of tasks between family members and other workshop people taking part in the trade could have existed. It is also possible that craftsmen's guilds existed, even if they have left no traces in written records.

The dating and types of shoes from the town area in Turku mostly resemble those found in the towns of central Sweden. Of these towns, the collection from Stockholm has particularly striking similarities in shoe types and datings with Turku. One explanation must be that at the time, these towns were part of the same kingdom of Sweden, and thus maintained close economic and cultural contacts with one other. Moreover, Turku could have been subject to Stockholm; the same ordinances that defined Stockholm shoemakers' job descriptions, shoe types and even shoe patterns and other details, also concerned Turku (Harjula 2008a, 160–161; for a good example of the differences in shoe styles in Stockholm and Bergen caused by differences in craft organizations, see Wubs-Mrozewicz 2005)

Other possible leather trades mentioned in written documents concerning medieval Turku are the sword-polishers and beltmakers. Renewing of scabbards perhaps by sword-polishers is also represented in archaeological material. The reference to a beltmaker (*Claes beltare*) as early as 1347 could indicate that even at that early stage of the town's history, professional division and specialization of some degree between leather artisans had evolved in Turku. Still, there are many leather artefact groups without any indication of their manufacturers. For example, which trade made pouches, bags, mittens, gloves or knife sheaths in Turku? All these artefact groups are well represented in archaeological material, even if there are no written records remaining. Tracing the nameless actors continues.

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Chapter 11

Ambiguous stripes – a sign for fashionable wear in medieval Tartu

Riina Rammo

In Tartu thousands of textile fragments have been found in medieval cesspits, preserved due to the favourable conditions for organic materials that exist there as a result of the waterlogged conditions caused by the high level of ground water and the anaerobic environment. At the present (2011), nearly 3000 fragments from five sites have been studied according to basic textile research methods (as outlined by Walton and Eastwood 1983). Occasionally wool fibre analyses have been applied as well, so assumptions can be made about the qualities of the initial fleece and the preparation process, and thus the provenance of the wool can be established (Nahlik 1963, 229–242; Kirjavainen 2005, 134–138). A great majority of these textile pieces (96%) are woven fabrics made of wool that are small scraps, hardly bigger than a hand palm and, currently, different shades of brown in colour. According to both the technical traits and analysed wool, it seems that approximately half or even more of these textile scraps had been imported, probably from Western European textile centres (Rammo 2009a; 2010, 204). While it is possible to analyse the raw materials and thus the technology used to make these fabrics, and draw conclusions about the production process and provenance of these finds, it is harder to (re)construct the consumption phase – the earliest usage and the consumers of these scraps in Tartu.

In the present paper I shall concentrate on one exceptional type of textile – striped cloth – that among the brown scraps dazzles the

researcher with relatively well-preserved visible colours and patterns (Figure 11.1). Usually the names of cloth types known from written sources cannot be related to their archaeological counterparts with ease. The striped cloth is an exception to this; it can be identified by a textile type from Flanders and England named *drap rayé*, *strijptelaken* and *ray* in written sources. The characteristic cloth is also recognised in numerous works of art that provide rich contextual information about the production, use and the cultural associations ascribed to it (Crowfoot *et al*. 2006, 52; Dahl 2009, 125). In addition to the many finds in Tartu, three fragments from Tallinn (about the excavations, see Lange and Tamm 1983) and one from Pärnu can be taken into consideration.

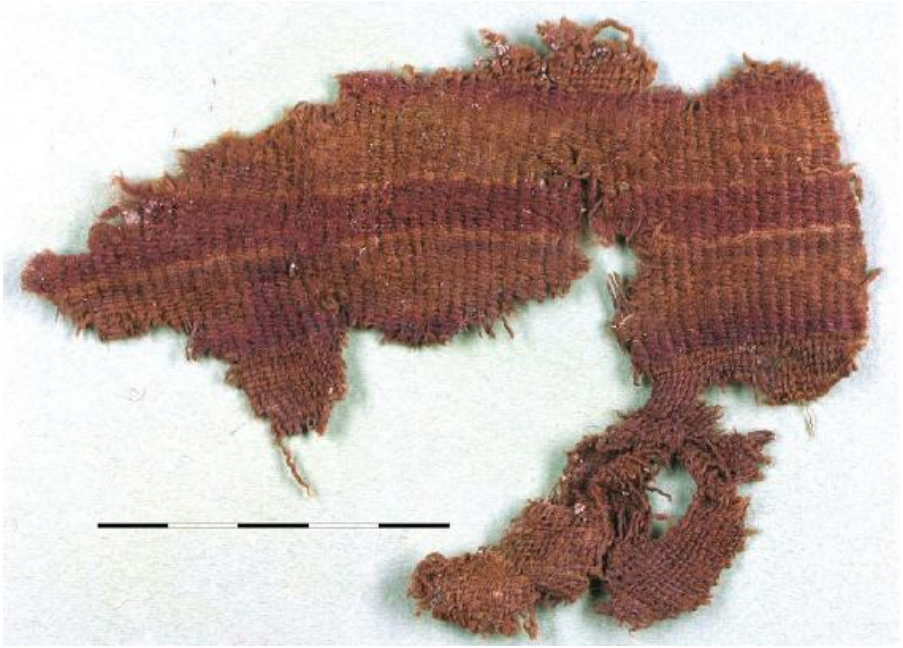

Figure 11.1: Fragment of a tabby-woven cloth patterned with red and yellow (?) weft-faced bands in extended tabby (Yard of the Cafe Werner, TM A-45). (Photo by R. Rammo).

On the basis of available evidence I will attempt to outline the imaginable life trajectory of this type of striped cloth as a group, with an emphasis on the consumption phase. Put simply, when applying the biographical approach to item(s) the focus is usually on the processes whereby an object is produced, distributed, circulated, used and finally discarded. One of the central ideas stressed by different authors is the possibility of seeing each moment of this life cycle within its social contexts and networks, which enables us to envisage the people and the cultural associations they create (e.g. Kopytoff 1986; Appadurai 1986; Gosden and Marshall 1999). To achieve this aim different sources – archaeological, written and pictorial – have been combined in this article.

Medieval Tartu and the archaeological context

Tartu (Dorpat) was a typical colonial town founded after the Christianization of Livonia at the beginning of the 13th century. During the Middle Ages Livonia was a political entity located in the present day areas of Estonia and Latvia. Up to the 14th century a Hanseatic town with about 5000 inhabitants was developing there (for further details see Russow *et al.* 2006, 159–161). Written sources on Tartu are scant as the medieval archives of the town have not survived; therefore, in the present paper information on comparable towns in medieval Livonia, mainly Tallinn (Reval), has been used. The social structure of Tartu was probably similar to that of many other German colonial towns, such as for example, Tallinn and Riga (Johansen and Mühlen 1973, 86–126; Mühlen 1997, 63–69). The upper social tier of the town consisted of wealthy merchants of German origin (*Deutsch)*, who constituted the ruling town council. The middle tier mainly consisted of German merchants and craftsmen, and a small number of Estonians and other ethnic groups (*Undeutsch*). The inhabitants of these two strata by and large formed the citizenry of the town. However, the most numerous of the social categories were the lower orders of unskilled labourers and servants mainly belonging to the *Undeutsch*.

One of the richest sources for information about the everyday life of inhabitants in medieval Tartu is the numerous wooden cesspits (e.g. Mäesalu 1990; Vissak 1994; Tvauri and Ütt 2007; Bernotas 2008) containing plentiful finds, including among other things, well

preserved textiles. The place of deposition, namely cesspits, does not allow the reconstruction of the complete cycle through which a textile would have passed before it was thrown away; but still, some general conclusions can be drawn about the previous ownership and usage of these textiles.

It is rather hard to make an evaluation only on the basis of these findings of the social position or occupation of the users of one latrine, and it is impossible to relate these complexes to a certain property or a household (Schütte 1986, 248; Haak and Russow 2012). The cesspits have been discovered in the central areas of the medieval town (Figure 11.2); they were used as latrines and were situated in private backyards (Tvauri and Ütt 2007, 141). Although proximity to the market square, churches and the main roads might be one indicator of greater prosperity, we are unaware if this was considered of importance for the living quarters. Nevertheless, none of the sites is located in a clearly 'less well off' area (Haak and Russow 2012, 152). The users of these lavatories belonged to the households of sedentary inhabitants who varied from artisans to merchants.

Often the cesspits have been related to luxury consumption and rich merchants because of imported goods found in them, such as plant remains, glass and ceramic vessels (e.g. Tvauri and Ütt 2007, 145; Mäesalu 2008, 587). In reality the deposition process of a cesspit may have been too complex to allow such a straightforward interpretation. In addition to the luxuries, the cesspits contain different items of utilitarian use (wooden dishes, local pottery) that can be related to a wide spectrum of social strata. In some cases the archaeological information gathered in close vicinity to these cesspits has been related to handicraft activities, for instance, with smiths (3 Lossi Street) and leather-working (15 Ülikooli Street) (Peets 2003, 180; Haak and Russow 2012, 164). It should be kept in mind that even if we suppose that a cesspit represents the trash of just one household from a certain period, then actually it might still embrace a diverse group of persons, including the owner, his family, as well as servants and apprentices.

The cesspits' evidence directly illustrates a certain moment in the life of the textiles: the end of their usefulness and their final discarding. The cesspits, once used as private latrines by a household, imply the earlier usage of these textiles for personal purposes in the

domestic sphere, most likely for clothing and furnishing. The last function of these worn-out scraps was probably that of present day toilet paper and sanitary towels, although simply being the remnants from the re-making or making of clothing items that have been discarded into the cesspit cannot be excluded either.

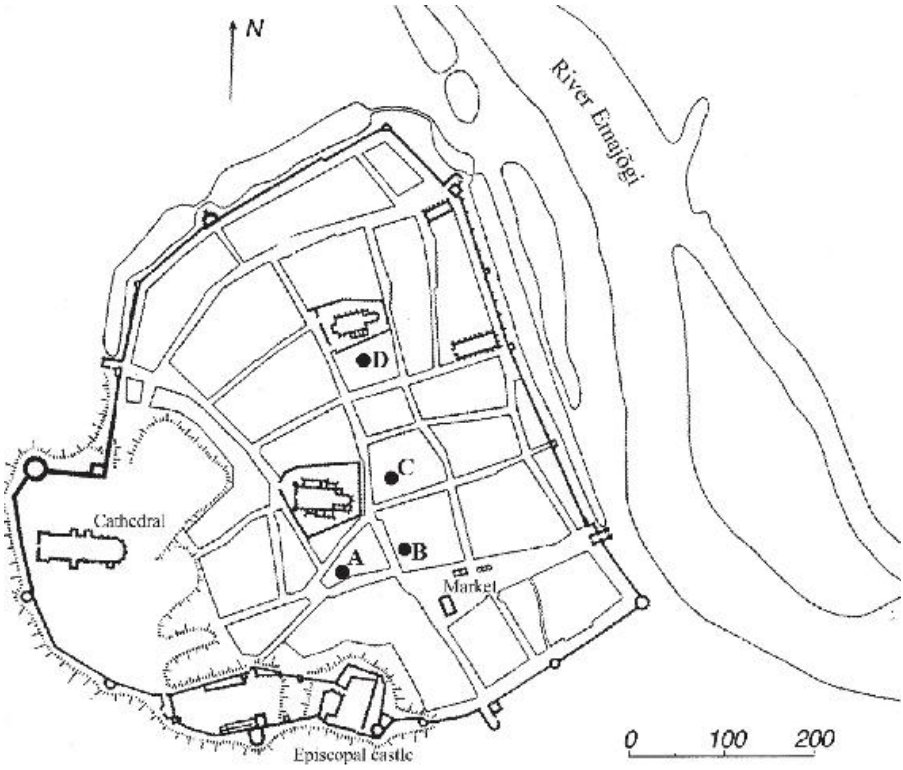

Figure 11.2: Location of cesspits in medieval Tartu: A – Lossi Street 3; B – Yard of the Cafe Werner; C – Ülikooli Street 15; D – Yard of H. Treffner Secondary School. (Map by R. Rammo).

Written and pictorial sources

The use and cultural significance of stripes have always been a matter for speculation, and different cultural associations have been attributed to them by many scholars (Mellinkoff 1993, 5–31; Pastoureau 2001; Dahl 2009). The striped fabric was used mainly for garments, and it seems that rather smaller clothing items especially, for example, hoses and hoods, were sewn using it (cf. Jaacks 1992, 136–137; Walton Rogers 2002, 2883). Although other garments (e.g. tunics) might occur as well (e.g. Sachsenspiegel n.d.). The find from medieval Pärnu (Figure 11.3) is the only fragment found in Estonia that reveals the previous use of striped cloth as a garment; noteworthy, is the silk thread used for attaching buttons.

Stripes can be associated with the overall trend in European fashion of the 13th and 14th centuries when vivid and bright colours (e.g. reds and yellows) along with various multi-coloured (*mi-parti*) and patterned (checked) textiles were favoured (Mellinkoff 1993, 5–31; Munro 2007; Dahl 2009, 128). It has been suggested that colourful clothes were originally (during the 12th and 13th centuries) associated with people of low rank, servants and outcasts (e.g. fools, minstrels, entertainers), but they became fashionable and widespread by the 14th century and stripes were then worn by everyone, both rich and poor (Mellinkoff 1993, 19; Dahl 2009, 129). Especially popular were stripes and other patterned fabrics in Germany, for example, a sumptuary law from Norway from the beginning of the 14th century defines the *mi-parti* and checked pattern as German fashion, which probably signifies its origin (Mellinkoff 1993, 10). With the end of the 14th century there began to be a shift from the preference for bright colours to a darker spectrum (Munro 2007), and the bright coloured stripes also began to fade out of high fashion (Mellinkoff 1993, 23).

Despite its social upgrade, by the beginning of the 14th century the attitudes towards stripes remained ambivalent since the cloth had multiple associations. On the one hand it was seen as a luxury restricted by sumptuary laws, on the other hand in some contexts stripes may have had strong negative associations with outcasts, reprobates and paupers (Pastoureau 2001, 16; Dahl 2009, 133). Striped textiles of different quality and value existed, thus with

diverse associations. As a stylish and trendy fashionable, the stripes were condemned by conservative or pious moralists and representatives of the Church as immoral and vain. For this reason, figures wearing striped clothes on images and in texts were perceived as rather negative; for example, the enemies of Christ (soldiers, tormentors, mockers) were often depicted in striped hose (Mellinkoff 1993, 20–21; Dahl 2009, 129). From at least the 14th century stripes became the hallmark of some occupations, for example, certain lawyers and foot soldiers (Mellinkoff 1993, 31).

Moreover, it is interesting to note that although the collection of striped fragments found in archaeological excavations in Tartu is rather numerous in comparison to other European towns, it seems that in Livonian written and pictorial sources the stripes remained 'invisible'. No record mentioning clothes adorned with stripes is known to the author so far. The reasons for this may be several. First of all, cloth was frequently mentioned in written sources according to the place of production without information about its appearance or technical specifications. To the medieval merchants and consumers the link between production place and cloth quality was obviously self-evident and did not need an explanation. Secondly, the written sources concerning the Livonian area only became more numerous during the 15th century, but by that time cloth with bright stripes was already out of fashion. Nevertheless, in the broader context of colourful fashion it is worth mentioning a regulation of the tailors' guild from the years 1363–1374 in Tallinn (TLA, f. 230). Namely, the apprentices and members of the company who had no house (i.e. they were not burghers) were prohibited from wearing garments of *mi-parti* style – another phenomenon of the colourful fashion in the 14th century – indicating possibly that this style was appropriate to the burghers, who were men of special position and status (Kaplinski 1995, 251).

Figure 11.3: Fragment of a garment of striped fabric with buttons made of cloth and worked with silk from Pärnu (PäMU 14489/A 2507: 71). (Photo by M. Samorokov).

Although previous information gained from written and pictorial sources shows the complex system of associations that a special pattern or colours could have had in past societies, the regulation of the tailors' guild mentioned above indicates that colourful fashion (apparently including the striped pattern) was regarded as stylish and fashionable in medieval Tallinn; however, it was not available for everyone. This assumption is seemingly supported by the archaeological evidence, where cesspits containing striped textiles are situated within the central areas of the medieval town where the sedentary inhabitants with property resided.

Stripes from Tartu

At the present moment 85 fragments with colourful bands have been discovered at the Tartu sites and the number is increasing as the conservation process of the new finds proceeds. As mentioned above, the majority of the Tartu finds belong to the larger textile assemblages found within cesspits dated from the end of the 13th to the beginning of the 15th century (Figure 11.4).

According to the archaeological data the striped cloth had reached Tartu at least by the end of the 13th century. The largest assemblage of striped scraps from this period is from a cesspit in Lossi Street (Figure 11.4: 1). In the 14th century the number of finds stays relatively low and only a few finds have been dated to the end of the 14th century and the beginning of the 15th century. These dates correspond well with the period when stripes where part of fashionable wear throughout Europe, according to the written sources. A large part of the striped fragments (29 scraps) was discovered during an excavation in the yard of the present day Cafe Werner (Figure 11.2: B; Figure 11.4: 6–9), but unfortunately, information concerning the exact archaeological context of the 18 finds has been lost over the course of time. However, on the basis of style, technical data and comparison with other finds, it is likely that these textiles belong to the group of striped cloth and can be dated to the same period as other finds from Tartu.

	Site: cesspit/ location	Cat. no.	Date	No. of analysed finds	Striped fabrics			Altogether
					Tabbies	Tabbies with silk in bands	2/1 twills	
1	3 Lossi Str: 1	TM A-169	Late 13th–beginning of the 14th c.	678	40		2	42
2	3 Lossi Str: 2	TM A-169	Second half of the 14th–beginning of the 15th c.	369	2		1	3
3	3 Lossi Str: 3	TM A-169	14th c.	313	6		1	7
4	Yard of H. Treffner Secondary School: 7	TM A-115	Late 14th–beginning of the 15th c.	213		3		3
5	15 Ülikooli Str: 1b	TM A-141	Second half of the 14th–beginning of the 15th c.	322		1		1
6	Yard of the Cafe Werner:	TM A-45	13th c.	Under study			1	1
7	Yard of the Cafe Werner: KI/R9	TM A-45	14th c.	Under study	3			3
8	Yard of the Cafe Werner: 9	TM A-45	Second quarter of the 14th c.	Under study	4		1	5
9	Yard of the Cafe Werner	TM A-45	Context missing	Under study	18		2	20
	Altogether				73	4	8	85

Figure 11.4: Cesspits and analysed finds from Tartu (datings after Mäesalu 1990; Tvauri and Ütt 2007, 145; Vissak 2000; Vissak 1994).

The majority of the striped textiles found in Tartu represent tabby weaves (91%) adorned with weft-faced bands in extended tabby (Figure 11.1; Crowfoot *et al.* 2006, 52–55), so the following description focuses mainly on this type. Tabby fragments with bands found at different archaeological sites constitute a technologically coherent group. This indicates that it was a standardised commodity produced by professional artisans. Standardisation can be evaluated through criteria such as the unvaried quality of the textiles traced in the raw materials used, the yarns' properties and the weaving process.

Judging by the wool fibre analyses (19 single threads from six fragments) the striped textiles belonged to fabrics imported from Western European textile production centres. From all six textile fragments fine wool types could be ascertained, mostly in the warp yarns, and in some fragments in the wefts as well. The sampled wool was homogeneous and fine ('fine' and 'semi-fine types' according to Ryder 2000) and this can be interpreted as the hallmark of an imported fabric in the Livonian context (Rammo 2010, 204). At the same time, almost all the textiles analysed also showed slightly more heterogeneous wool with few kemps and thicker hairs, and they were thus of lower quality ('generalised medium type' according to Ryder 2000). The latter wool type is coarser than usually present in textiles interpreted as imports among finds from Tartu (Rammo 2010, 204). The wool fibre analyses from tabbies with bands in an extended tabby found in York showed very similar results (Walton 1989, Tab. 22).

Rather tight and fine z-spun yarns have been used for the warps, and looser and thicker s-spun yarns have been used for the wefts. In addition to the even qualities of wool and threads, the standardisation of the main tabby weave is remarkably high. The density of weave in tabby textiles is relatively similar for the whole group: on average 10 warps and wefts per cm (ranging from 8–12 cm). The six selvages found are all marked with red yarns indicating professional handicraft. This kind of selvage gives some indication of the origin of the cloth and provides some evidence of its quality (e.g. Nahlik 1963, 267; Sorber 1998, 26; Holbach 2000, 196). The traces of final finishing of cloth (i.e. fulling) detectable on most striped fragments are rather coarse – the entangled fibres on the surface are long and probably left unshorn.

The design of the stripes varies from a single monochrome band to

wide combinations (*c.* 11 cm in width) of different colours; occasionally the colour of the warp and weft yarns of main weave also differs (Rammo 2009b, fig. 28). The most frequent colour that can be visually distinguished in the archaeological textiles is red. Dye tests usually indicate that the madder *Rubia tinctorum* was used as a colouring agent (Walton 1989, 400–401; Crowfoot *et al.* 2006, 55) and this dyestuff has been detected in a striped fragment from Tartu (a weft yarn of a red band, TM A-169, analysed at the Conservation Research Department of *Instituut Collectie Nederland*, Amsterdam). In addition, in rare cases yellow, violet and blue can be observed visually. As some archaeological finds as well as pictorial and written sources reflect, the textiles in the past were far more colourful (e.g. Nahlik 1963, 196; Peets 1998, 282; Sachsenspiegel n.d., 20 *recto*).

Exceptions among the pieces with tabby main weave are four fragments from two chronologically recent cesspits (Figure 11.4: 4–5) that are made wholly of fine wool which is carefully teaselled and shorn and into their narrow stripes some silk has been woven (Figure 11.5; Crowfoot *et al.* 2006, Pl. 12). Another special group consists of eight fragments of 2/1 twills (Figure 11.4) with stripes in extended tabby. These fragments are noticeably coarser than tabby fragments in general (e.g. Vestergård Pedersen 2009, fig. 7.4) and the wool is heterogeneous with hairs both in z-spun warp and s-spun weft yarns; the finishing is rude (i.e. fulled, but the fabric is left unshorn).

Textiles for trade

From the written sources it is known that *Strijptelaken* or *drap raye* were mass-produced commodities woven in several textile production centres in Flanders, Brabant, the Northern parts of France, and England (Bridbury 1982, 68; Nicholas 2002, 174; Crowfoot *et al.* 2006, 52) and exported all over Europe from London to Novgorod. Remains of similar striped textiles to the finds from Tartu have been found in numerous cities and towns (Figure 11.6). This kind of standardised commodity indicates that there was a close collaboration between a high number of skilled persons, including both guild-related professionals (weavers, fullers, dyers, shearers) and other workers (wool sorters, beaters, carders, combers, spinners) in urban centres (Munro 2008, 115–116). Striped textiles were also woven in German towns (Hammel-Kiesow 1999, 74). Klaus Tidow suggests that

the 2/1 twills with bands found in Lübeck and Müsen could be local copies of imported and finer tabby fabrics (Tidow 1988, 205–206; 1992, 239).

What about the value of striped textiles found in Tartu? According to the written sources the striped cloth was produced in a wide range of fabrics, from cheaper to luxurious. For example, in Flanders striped cloth often belonged to the cheapest rank of textile export, but at the same time the finest woollens were occasionally adorned with stripes (Chorley 1987, 350, 373; Nicholas 2002, 174; Crowfoot *et al.* 2006, 55; Munro 2008, 115). One important factor influencing the final price of a cloth was the raw material; that is, the wool and dye plants used (Munro 2003, 217). In striped textiles found in Tartu the heterogeneous low-grade wool is often present, and for dying the madder *Rubia tinctorum* was used, one of the most widespread and cultivated dye plants in medieval Europe (Munro 2003, 212). Hence, it seems that these striped textiles mostly belonged to the cheapest rank of textiles produced in Western Europe. For instance, rather than belonging to the ranks of textiles of high production and trade value, the cheaper striped cloth was produced virtually by all the centres in Flanders. For example, one can identify *schmale Ypersche* or *strijpte halflakene* (i.e. narrower than proper broadcloth) from Ypres that was also imitated in Poperinge (8 miles to the west). The production from both these centres was popular in Livonian and north-western Russian trade (Horoshkevich 1958, 218; Holbach 2000, 196; Nicholas 2002, 174–175, 282; Munro 2003, 253).

How did the striped textiles end up in Tartu? The importing of textiles into Tartu should be seen in the context of the Hanseatic network: in the 14th century, Tartu's main income was derived from the transit of commerce between Western Europe and Russia. According to written sources, cloth produced in Western Europe, which was mostly of Flemish origin, was one of the primary products traded (e.g. Abraham-Thisse 2002; Munro 2008, 97; Jahnke 2009, 74). The wholesale merchants originally bought their supplies from different fairs, but from the 14th century the centre for the Hanseatic trade geared for the Eastern European markets was established in Brügge and merchants now had the opportunity to choose from a wide variety of cloth in the town's cloth hall, mainly from Flanders but also from other production areas (Holbach 2000; Jahnke 2009, 75). From

Brügge, the cloth was shipped with other goods to the east, usually via Lübeck (Mickwitz 1938, 58; Sass 1955, 83). Another possibility worth considering is that the fragments may have originated from the personal clothing items worn by travelling merchants, artisans or settlers who arrived in Tartu. However, the uniformity of fragments from different archaeological sites in Tartu rather indicates that it was a commodity that was brought by merchants for sale.

Figure 11.5: Wool cloth patterned with weft-faced bands in extended tabby using pattern wefts of two different coloured wools and silk thread (Yard of H. Treffner Secondary School: 7, TM A-115: 1016). (Photo by R. Rammo).

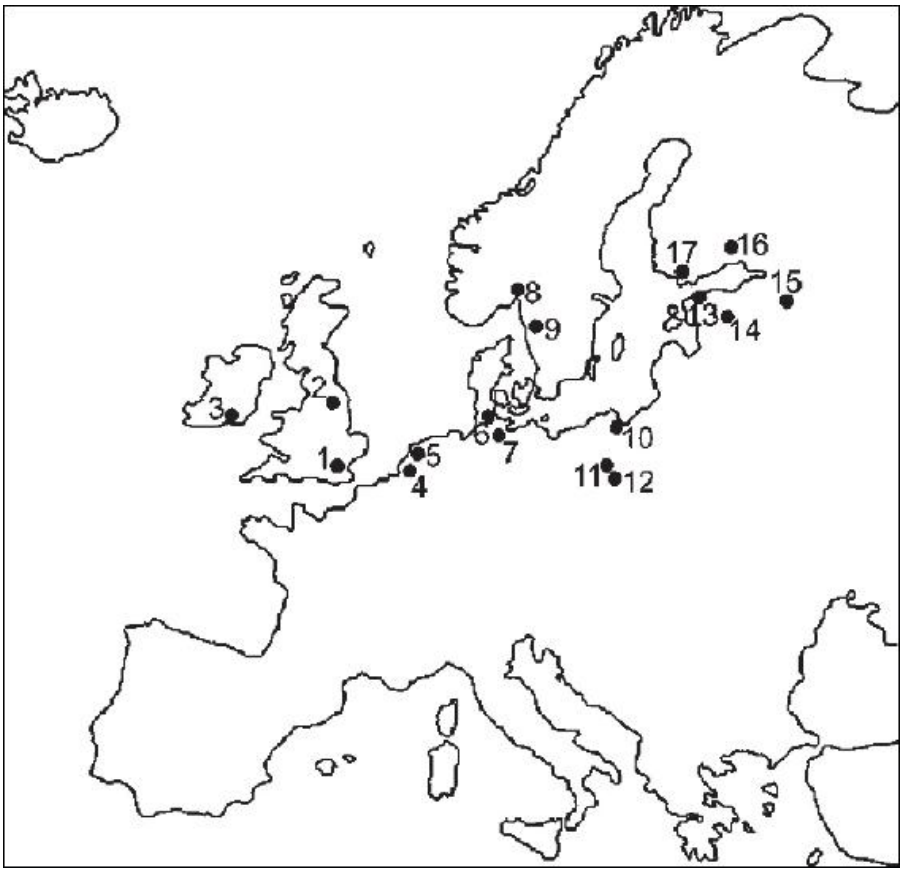

Figure 11.6: Striped fabrics from the 13th–14th century deposits. Cities/towns: 1. London, 2. York, 3. Waterford, 4. Amsterdam, 5. Dordrecht, 6. Schleswig, 7. Lübeck, 8. Oslo, 9. Lödöse, 10. Gdańsk, 11. Wrocław, 12. Opole, 13. Tallinn, 14. Tartu, 15. Novgorod. Graveyards: 16. Mikkeli Tuukkala; 17. Kaarina Kirkkomäki (Crowfoot et al. 2006, 52–55; Walton Rogers 2002, 2882–2883; Wincott Hecket 1994, 149; Vons-Comis 1982, 156; Tidow 1988, 205; 1992, 239; Kjellberg 1982, 137; Vestergård Pedersen 2009, 140–143; Nahlik 1963, 252–254; Riikonen 2007, 19–20).

Consumption of imported textiles in medieval Tartu

On the basis of archaeological (variety of finds) and written sources (active cloth trade within the Hanseatic network) it can be assumed that by the 14th century the market for imported cloth with a sufficient consumer base had developed in Tartu. Cheaper types of foreign cloth that overwhelmingly dominated Livonian trade in the Middle Ages should be regarded as mass-commodities, which were not luxury items meant only for the highest rank of society (wealthier merchants, aldermen) or the corporations and companies (e.g. town council, guilds). Instead the less expensive products were aimed at a relatively wide range of users and they were affordable to people of middle status, such as various artisans (Mickwitz 1938, 58–59; Sass 1955, 83–84; Horoshkevich 1958, 239; Hammel-Kiesow 1999, 75; Harder-Gersdorff 2002, 136; Jahnke 2009, 79).

The consumers apparently had the possibility of choosing from cheaper and luxurious fabrics, and from different colours, according to their income and position. In addition to economic and rational reasons, the choice of cloth could have been influenced by other factors, including social norms and cultural associations. Sending the correct messages about one's social position, identity and taste is an important aspect of clothing. According to Carsten Jahnke 'the typical wholesale trade merchant had to consider the wishes of the consumers, their financial capabilities and the whims of fashion' (2009, 77). Hence the local consumers influenced the types of cloth that were imported and indirectly, through the merchants, the production processes. I believe that in medieval (13th–14th century) Tartu consumers found stripes fashionable and desirable and a demand for striped cloth existed, although in reality the ways of acquiring textiles and products made of cloth (clothing, furnishing etc.) in a medieval town were rather varied and not always related to the deliberate decisions of actual wearers. Clothes were often inherited, gifted, bestowed, reused, and paid as salary and liveries (Põltsam 2002, 23–25).

The consumption and appropriate wear of a certain kind of clothing presupposes special knowledge (Appadurai 1986, 41) about

the value and significance attached to clothes, including fashions and social restrictions. Since the foundation of the town and arrival of the first settlers from Germany, fashion in medieval Tartu generally seems to have kept up to date with fashion in other Northern European towns (Põltsam 2002; Rammo 2012). The Hanseatic merchants were not only the middlemen for commodities (cloth), but also for knowledge about consumption (e.g. newest fashions). Also important were travelling craftsmen (journeymen) and apprentices who brought their personal clothing with them and became consumers on the spot. The main direction from which these settlers arrived was Northern Germany (e.g. Kaplinski 1980, 92–95, fig. 1; Mühlen 1997, 75). Thus, the abundant presence of striped textiles in Tartu could coincide with the idea of colourful fashion being German fashion.

It should be stressed that a medieval town was a gathering place for different ethnic groups and traditions. This might have created a local specific context. On the basis of written sources it has been stressed that the outfits of Estonians, who comprised numerous lower ranked sorts, retained similarities with the clothing worn by peasants in the countryside. The textiles were homemade and the garments were culturally characteristic (Johansen and Mühlen 1973, 402–403; Põltsam 2002, 31). Thus, it can be assumed that the way one dressed was not only related to the financial situation or laws imposed by the ruling elite, but that the different habits, cultural norms and knowledge of appropriate appearance had to be taken into account.

Conclusion

Imported textiles, and amongst others, the striped cloth had a role in the everyday urban culture of medieval Tartu. The striped textiles unearthed in Tartu most likely belonged to the cheaper types of textiles (first and foremost due to the relatively low-quality raw materials). They were among those produced for export in Western European production centres. Their presence in Tartu corresponds well with the general circumstances of the Baltic textile market where inexpensive types dominated. Taking into consideration the widespread production of this kind of fabric in Flanders and the dominant position of that area's cloths in Hanseatic trade, it is likely that the striped textiles in Tartu originated from Flanders. The presence of imported textiles, including the striped ones, can

obviously be related to the Hanseatic trade network as well as to the north German influence on local consumption habits.

Were the colourful stripes in medieval Tartu a sign they were paupers, fools and servants, or on the contrary were they indications of dignity and luxury? On the basis of available evidence the striped textiles cannot be related to consumers with a specific occupation (e.g. lawyers, heralds, minstrels) in the town's society. This is indicated by the seeming similarity of the textiles, both in technical manufacture and colours found from different archaeological sites.

All the find places (i.e. cesspits) were situated in relatively central areas within the medieval town's walls, and nothing indicates the people were paupers or a lower class of inhabitants. On the other hand, nothing exclusive can be pointed out from the archaeological context of the location of cesspits and analysis of assemblages of finds. The striped clothing was not an ultimate luxury. It might even be suggested that the people of the highest rank in a town's society or with some kind of position (e.g. clerics) did not dare wear this kind of cloth of lower quality, especially when the contradictory associations related to this pattern are taken into account.

Presumably, the colourful fashions were aimed at the burghers of the upper and middle levels, who were mainly of German descent or with *Deutsch* identity. Certainly, the consumers of striped cloth were aware of the latest trends of colourful fashion in the 13th to 14th centuries and had knowledge about appropriate wear in other Hanseatic towns in Northern Europe. For instance, the value of this fabric and the status of its wearers have been stressed by the fine silk seams of the fragment from Pärnu, another Hanseatic town in Medieval Livonia.

Thus, in Tartu the stripes can be seen as an occurrence of popular fashion and style. It can also be suggested that the eye-catching pattern was meant to act in public as an expression of the consumer's taste and fashion consciousness, and that the presence of the pattern might indicate conspicuous consumption. The desire for colourful fashion (including striped patterns) can be interpreted as implying the presence of active decision-making by consumers who had long-distance contacts and who consciously expressed their identity. The users of imported fabrics in Tartu were not just passive actors in the cycle of production, distribution and consumption restricted by the

rules of a dress code; instead, they influenced with their choices the whole process from the beginning.

Nevertheless, in reality the social borders are vague when it comes to the town's multi-layered population, and the limitations pointed out here do not mean that the stripes were never worn by persons belonging to the lower rank of the town's community. The clothing reached the end user through varied means and often the choice about what to wear was not made deliberately, so the possibility cannot be excluded that worn-out and outdated striped clothes reached the paupers. In these cases, the significance of stripes changed; the poor, wearing their only garment, made of striped cloth, probably did not worry about their appearance, identity or taste.

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Abbreviations

TM: Tartu City Museum
TLA: City Archives of Tallinn
PäMU: Pärnu Museum

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Chapter 12

Silk finds from Oseberg. Production and distribution of high status markers across ethnic boundaries

Marianne Vedeler

Silk finds dating to the Viking Age are rare in Scandinavia. Who brought these silks to the North? And what did they mean to people here? This paper is about the exchange of knowledge of silk and its value. Who were the key actors in the distribution of silk to Scandinavian areas? I will try to address these questions, starting with an example from Norway.

The two women in the Oseberg mound in Vestfold, eastern Norway were buried with an extravagance of goods including different types of silk textiles. Typological examinations indicate that the silks were probably imported from Byzantium and Central Asia. There is reason to believe that these fabrics functioned as markers of status and power in the production areas, as well as in the distribution areas, and in the following questions of relationships and interaction between economic networks and the production of status markers will be addressed. The silk textiles are of particular importance, since diverse connotations are connected to products from the silk-producing regions. Silk production and dyes formed an important basis for power in the production areas, and were in part very strongly regulated with regard to usage, gifts and sale abroad. The interaction between production, distribution and consumption of luxury silk textiles in the period between the 8th and 10th centuries is therefore a particularly interesting element in the interpretation of the Oseberg textiles as

status markers (Vedeler 2014).

Silk fabrics found in the Oseberg mound

A comparison of weaving technique, colours and patterns gives reason to believe that most silk fabrics found in Oseberg were produced in Central Asia (Nockert 2006, 297–298). Other fabrics were probably made in Byzantium or in the eastern Mediterranean area (Figure 12.1). However, mutual interactions among Byzantine and Persian silk-production centers make the identification of further specific production sites difficult (Jacoby 2004, 201–204). It is striking that very few early-medieval silk fabrics have been found within their areas of production. Consequently, interpretation of area of origin is first and foremost based on comparisons with other forms of art, on historical sources, and on technical studies of fabrics. Some silk fabrics also have inscriptions connecting them to specific Byzantine or Muslim rulers, but this is not the case for the Oseberg textiles.

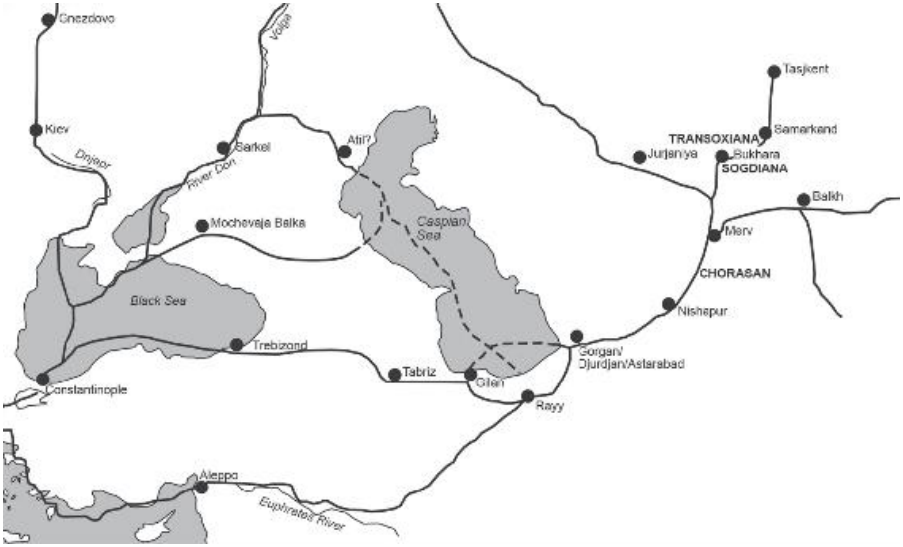

Figure 12.1: Main production area for silk products exported to Scandinavia in the Viking Age. Production and trade sites are marked with dots. Possible trade routes are marked with lines. (Drawing by M. Vedeler and E. M. Hoff, University Museum of Bergen).

All the silk strips from Oseberg are made in a weft-faced, compound twill technique, often called samite (Nockert 2006, 279). Samite weave is a relatively complex technology with two warp systems: binding warp and inner warp. The weft is usually divided into a number of colour series. Similar fabrics have been preserved in several European churches and in Nordic Viking graves. Fabrics from the same production areas have also been found in a cemetery in Caucasus, near the northern Silk Road (Ierusalimskaja 1996).

The Sasanian dynasty in Iran (226–651) manufactured distinctive products of valuable silk fabrics in their weaving mills in Susa and Fars, as well as in other regions (Laiou 2002, 3; Lopez 1978). Some of the patterns found on the Oseberg silks are recognizable as typical of Sasanian silks. For example, Sasanian pearl roundels are well known: each encircles a bird with ribbons around its neck, holding a necklace in its beak. The motif on one of the fabrics found in Oseberg is a duck, also with a ribbon, but holding a pearl necklace (Figure 12.2). Similarly, the 'bird with pearl-tiara in its beak' has a special position in Persian art. This motif is present in Sasanian decorative art (in metalwork and wall decorations). However, motifs similar to the Sasanian were picked up and used across a wide area, even after the fall of the Sasanian Empire in the mid-7th century (Sheng 1998, 148–150). In the Sogdian area, now in Uzbekistan and Tajikistan, silk fabrics adorned with similar Sasanian motifs were probably produced in the 8th and 9th centuries, and from written sources, we know that there was a Tiraz-fabric in Sogdiana in the Abbasid period (Serjeant 1972, 97). The largest towns in Sogdiana, Samarkand and Bukhara were central nodes of the Silk Road. The Russian archaeologist, Anna Ierusalimskaja sees the 'duck with pearl-tiara' motif as a Sogdian syncretisation of the Chinese 'Tang-duck' and the Sasanian 'pearl-necklace' (Ierusalimskaja 1998, 237).

The design and colour of one of the other silk fabrics from Oseberg (Nockerts fabric no. 12) indicate that it was produced in Byzantium or elsewhere in the eastern Mediterranean area (Geijer 1972; Nockert 2006, 298). In this case, the red colour used in the weft is of special interest. New high-performance liquid chromatography (HPLC) analysis shows that a very costly dyestuff from an insect called *kermes vermilio* was used together with the cheaper and more common madder, in order to create a rich red colour as part of the pattern (Van

den Berghe 2011, 6). The kermes insects live on oak trees in and near the Mediterranean region.

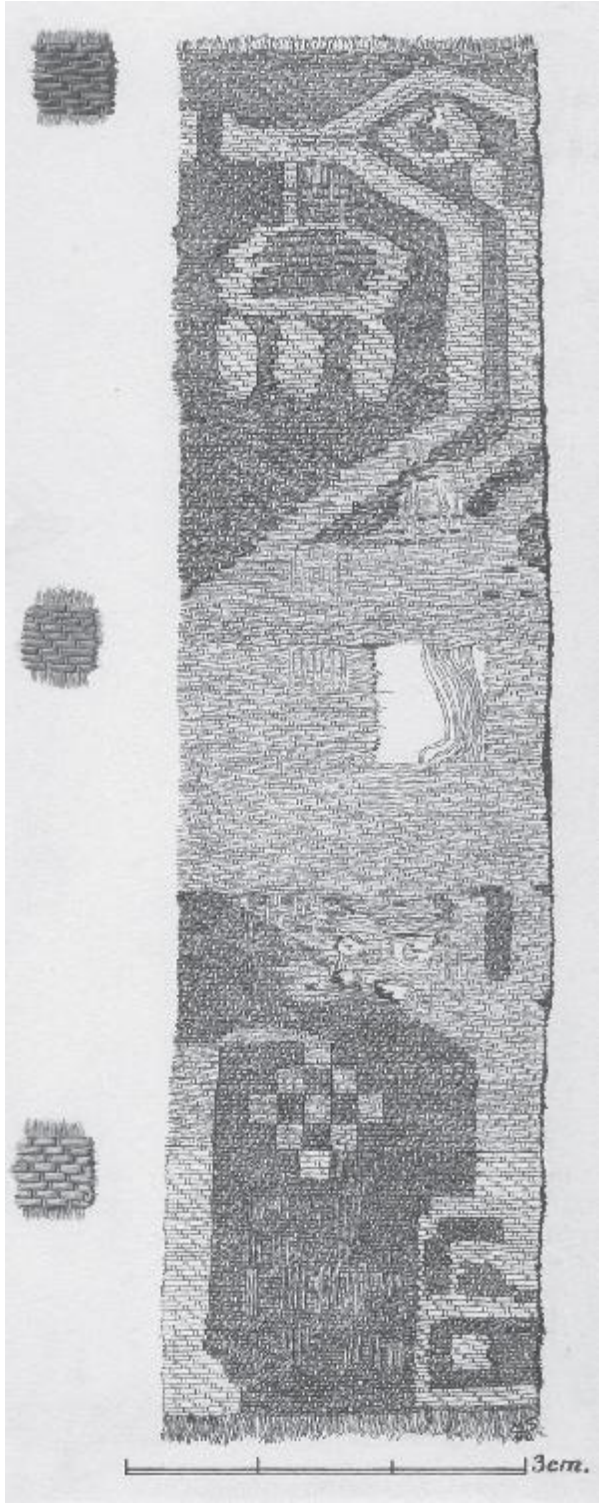
3cm.

Figure 12.2: Fragment of samite silk with bird-motif, found in the Oseberg mound. (Drawing by M. Storm. Photo by A. C. Eek, Museum of Cultural History, UIO).

In the 9th century, Byzantine silk production was conducted primarily within the capital of the Byzantine Empire, Constantinople (Lopez 1978, 197). Similar designs and techniques were also used in smaller production centres in the eastern Mediterranean area, including the regions presently incorporated by Syria, Beirut, Tyre and – possibly – Egypt (Wild 2003, 144). At present, it is not possible to identify the precise place of production of the Oseberg fabrics within the Byzantine or east Mediterranean region. The early samite silks found in medieval churches around Europe have often been used as relic covers, but also in paraments and clothing. The particular use of samite silks in Viking grave contexts is not fully known, but many of these fabrics must have been in use as clothing or to adorn garments. Many of them seem to have been cut into narrow strips of cloth, among them the silk fabrics from Oseberg.

Silk as a high status marker

Almost all Viking-age samite silks found in Scandinavia have been found in high-status contexts: in mounds and/or in graves with extensive and costly grave goods (Figure 12.3). There is one possible exception, Brista in Uppland, Sweden. In this case, the silk was found in a grave equipped merely with oval brooches and an equal-armed brooch (Bender Jørgensen 1986, 241). Nonetheless, this grave could still be considered high-status according to Bergljot Solberg's criteria for Viking-Age female graves (Solberg 1985). Neither is this situation restricted to Scandinavia; Lise Bender Jørgensen has suggested that silk functioned as a prerogative of rank even in Merovingian continental Europe (Bender Jørgensen 1991, 145). In Germany and France, silks have been found in what one may presume to be royal graves, as well as the burials of high officials such as bishops and commanders (Bender Jørgensen 1992, with references).

In the main areas of production, the status value of silk fabrics is well documented by written sources (See Serjeant 1972, with references). Furthermore, the economic and political importance of silk production in early-medieval Byzantium and other silk-producing centres in can hardly be overestimated. Silk textiles were important as trading goods, as diplomatic gifts, and as regulated markers of official position and wealth. As such, silk products were subject to strict imperial regulation in Byzantium. The Byzantine court developed a

distinct hierarchy of clothing, with special designs and qualities for each office. This was used by the emperor as a system for reward and payment (Lopez 1978, 197; Muthesius 1997). A similar system was in use in the Persian Empire, while the Umayyad (661–750) and the Abbasid (750–1258) dynasties seem to have had a particularly large appetite for the consumption of textiles for clothing and furnishings. Caliphate officers and high officials expected an annual gift in the form of clothes and fabrics, and written sources show that silk fabrics were frequently used as honours from the caliph in different contexts. The quality and design of the gift varied according to the recipient's social status and the Caliph's desire to give credit. The distribution of classified textile types and qualities from different parts of the empire was controlled through an institutionalized system called Tiraz (Serjeant 1972, 7–15).

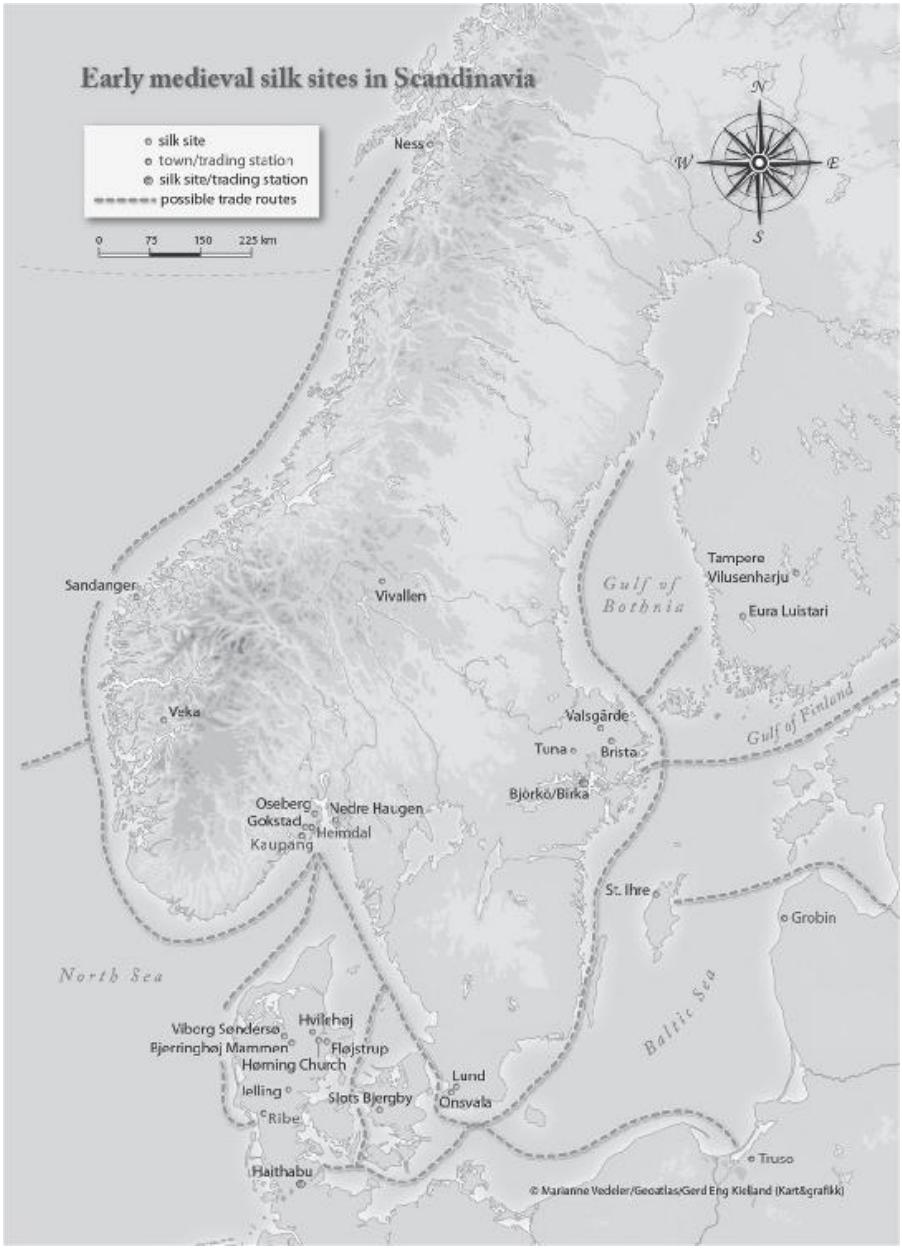

Figure 12.3: Distribution of early medieval samite silks found in Scandinavia. (Map by M. Vedeler and G. E. Kielland).

In a broader sense, a large proportion of the silk products were consumed in or near their areas of productions. However, the relatively large quantity of preserved eastern silks in Europe shows that their export was extensive. Written regulations for sale and export can also tell us a great deal about the flow of textiles from east to west in the early-medieval period.

Silk production and dyes formed an important basis for power in the production areas, and were in part very strongly regulated with regard to usage, gifts and sale abroad (Lopez 1978; Muthesius 1997). The find contexts of similar silk fabrics throughout Europe suggest that these objects also suited the purpose of signaling high social status in the areas of consumption. Sasanian and later Sogdian silk textiles, as well as Byzantine and east Mediterranean varieties were favoured as covers for the relics of Christian saints, and comparable silks exist in many European churches. One important reason for using silk fabrics to cover holy relics was the notion that the precious cloths constituted a show of honour to the relics, and absorbed sanctity through contact with them (Muthesius 2008, 86). Thus, fabrics of samite silk seem to have had a similar role as status marker and authoritative strengthener in both areas of production and consumption, notwithstanding considerable differences in use and meaning. It is reasonable to ask if the presence of samite silks in Scandinavian high-status graves reflects a wish to be associated with the social structures to which these silks were connected in the areas of production and in other consumption areas, such as church centres in central Europe. This does not mean that the symbolism of silk patterns was equally understood everywhere. Nuances in the mode of production, in patterns and in colours were probably used to signal regional identity within the production areas, and it is reasonable to assume that these nuances were not so well understood by more distant consumers. Nonetheless, cultural meetings encouraged by trade must have functioned as an engine for the exchange of knowledge about silk as a marker of status and authority. Exchange of knowledge about the value of the raw materials, the complex and labour-intensive production of the fabrics, and their aesthetic expression provided the basis for this role.

The wide range of silk quality observed in the production areas indicates a complex use of silk as a status marker within several social

groups, though it has been suggested that high-quality silk has been preferentially preserved in the burial material (Jacoby 2004, 205). In this regard, it is interesting to note that a variety of weaving defects and irregularities in the silks from Oseberg show that in certain respects these textiles are not of the highest standard. On the other hand, the presence of the Kermes dyestuff shows that very costly dyes were used. On reflection, the silks from Oseberg should undoubtedly be considered among the most precious luxury products in this consumer area.

The use of silk fabrics as status markers in the production areas as well as in Scandinavia indicates an exchange of knowledge about the value of silk, both economically and culturally. How did such knowledge exchange take place? It is assumed that the social elite in Norway were an integrated component of a broader aristocratic network in northern Europe (Carver 1989; Bender Jørgensen 1991; Myhre 1993; Glørstad 2010). It is, however, unclear to what extent knowledge of symbolic value was communicated between elites. I think it is reasonable to assume that this knowledge exchange was not the sole preserve of the rulers themselves, but rather that early-medieval merchants played a key role in such communication, as well as in the physical exchange of the silk fabrics.

Trading with silk

It is difficult to determine how the silk fabrics found in Oseberg and other Scandinavian graves came to end up there. It has, for example been suggested that the Oseberg silks could have been looted in Viking expeditions to the west (Nockert 2006, 298), but they may equally have come to Vestfold through a trade network, or as diplomatic gifts. The form and cutting of the fabrics may provide a clue that helps us to address this issue.

The fabrics have been cut into narrow strips (the longest is 56.5 × 1.8 cm: C55000/377 fabric no. 1, No. 43), unlike many of the relic covers in European churches, which are cut into rectangular pieces to make suitable containers. The narrow strips from Oseberg have been creased along the edges, and the needle-holes produced when they were sewn on to other fabrics are still visible. Similarly cut and perforated silk fabrics have been found in a number of Nordic graves, such as those at Mammen, Haugen Rolvsøy, Birka, Tuna, and Hvilehøj

(Geijer 1938, 176–179; Bender Jørgensen 1986, 227; Østergård 1991, 134–135; Nockert 1994, 114; Nockert 2006, 295). Archaeological finds from Moščevaja *Balka* in the northern part of Caucasus revealed that local tribes had buried their dead in a dry cave, clothed in samite silks probably made in Persia, Byzantium and China (Ierusalimskaja 1996, 17–20). Most of these burials have been dated to the 8th and 9th centuries. Many of the graves contained clothing that was exceptionally well preserved, including men's caftans and woman's dresses, headdresses and mantles, amongst other garments. Most are manufactured using linen fabrics, and trimmed with strips of silk-textiles (Figure 12.4). Several garments are made of a variety of different fabrics, sewn together to form a single piece. There are, for instance, examples of sleeves that feature strips of silk textiles composed of four or five different qualities sewn together. Narrow strips of silk are also used as trimming on sleeves, around the edges of kaftans, and as applications on the front of the garments. Apparently no care was taken to ensure that patterns or colours matched. These silk textiles seem to have been treated in the same manner as the strips found in the Oseberg mound.

The burial ground of Moščevaja *Balka* was located on the Iranian-Georgian branch of the Silk Road. To pass Caucasus, tradesmen had to pay tribute in return for guiding and support services for the horses and caravans. Most likely, they paid with some of the goods that they transported for sale, which would have included strips of silk. Witness reports by travelers from the 18th and 19th centuries show that at this time tax was paid in linen, according to a strict system based on textile units. Anna Ierusalimskaja has argued that linen here played the same role as that of silk in medieval times, when strips of silk of various qualities functioned as tax and payment (Ierusalimskaja 1996, 120–122).

Figure 12.4: Sleeve from garment decorated with strips of silk characterized by many different qualities and motifs. Found in Moščevaja Balka, *northern Caucasus. The State Hermitage Museum collections, St Petersburg. (Photo by M. Vedeler)*.

The cutting and mixing of silk strips at Oseberg suggests that they were sewn on to clothing, as in Moščevaja *Balka*. This does not necessarily suggest a similarity in fashion, but it certainly indicates that the silk strips from Oseberg could have been traded along the Silk Road.

The political situation in central Asia between the 8th and 10th centuries was unstable and complex. Continuous warfare and conflict must have threatened international commerce in this period. Indeed, the central Eurasian economy undoubtedly suffered from depression from the late eighth century, but the extent of the recession in trade is not fully known. From the 820s onwards there seems to have been a remarkable drop in new-minted dirhams within the caliphate. According to Chinese written sources, the economic situation worsened further during the late 830s, as a result of climatic change (Beckwith 2009, 157–158). To carry out business and to trade along the silk roads in this period must have been dependent upon knowledge of local geography and up-to-date political insight, as well as opportunities to build alliances. Merchants from Sogdiana probably dominated parts of the trade on the silk roads in this period; in some places the name Sogdian became synonymous with trade, and the Sogdian language was used as a *lingua franca* on parts of the silk roads. It is therefore reasonable to believe that Sogdian tradesmen were an important factor in cultural exchange between east and west in the early-medieval period. Written sources suggests that sogdian merchants delivered silverware from Persia, glass vessels and beads from Syria and Babylon, and Baltic amber and Mediterranean coral (amongst other things) to markets in China (Wood 2002, 65–67). A revolt against the Tang dynasty in the years between AD 755 and 763, however, led to a slaughter of Sogdian men, women and children (Bechwith 2009, 157). This incident must have affected trade on the silk roads in the following years, and the precious Persian silks must have been even less accessible for people in Scandinavia under such conditions. In this perspective, the silk strips from Oseberg are not only high-status objects by virtue of material, labour and skill, but also because it must have been extremely dangerous to bring goods safely through areas of war and economical collapse. Still, over 1000 fragments of silk produced in Byzantine, Persian/Islamic and Chinese areas are preserved in central parts of Europe (Muthesius 1990, 126–

128).

Alongside regular mercantile trade, gift exchange must have been an important factor in the export of silk from Byzantium to Europe's consumption areas. Byzantium ranked silk alongside gold and silver as a diplomatic gift (Muthesius 1992, 237), and several historical sources document the use of silk fabrics in early-medieval gift exchange (Muthesius 1992, 244; Cutler 2008, 80–101). It was also customary for Muslim rulers to exchange precious gifts of silk. Still, David Jacoby has showed that in the 12th century, Byzantine diplomatic envoys used ships engaging in commercial transportation when sailing between Constantinople and Egypt (Jacoby 2004, 213; 2000, 100–101). Thus there has not always been a clear distinction between economic relations and diplomatic gift exchange. The historian Anthony Cutler has recently addressed this question for the early-medieval period. He uses a number of early medieval Byzantine and Persian written sources to illustrate a clear link between trade and diplomatic gift exchange between east and west. A number of sources indicate the participation of traders in gift exchange. An example is Liutfred, a rich merchant from Mainz, and described as the bearer of royal gifts, who presents Constantine VII with gifts from the Italian King Berenger, in return for the gifts that the emperor had sent in the year 949. Cutler goes so far as to say that the term 'ambassador' or 'merchant' was given according to the purpose of the visit, and does not necessarily reflect a clear-cut distinction in attitude or mind of the representative (Cutler 2009, 266).

Cultural meetings and social and economic networks

Presumably, a small network of traders and travellers were able to communicate the economic, cultural and political importance of silk amongst each other and their clients across Europe. This could be the key to understanding how the appreciation of samite silks as high-status markers was spread in early medieval Europe.

It was first and foremost within this small group of merchants, and between members of the upper social strata, that this knowledge was exchanged. It can be argued that the effective but fragile network of international trade in the Viking Age was also a key contributor to the

development and use of status markers in the areas covered by the network.

Several researchers have suggested that network theory could make a significant contribution to the study of ancient exchange and communication, and that exchange proceeds mainly between a few particular nodes, rather than randomly among neighbors. Søren Sindbæk points out that very few sites actually played the role of hubs, and suggests that there was a relatively small and exclusive group of people who travelled recurrently between these few sites. '*The oft-celebrated global connections of Carolingian and Viking Europe, then, were held together by a tiny core of travellers, passing between an even smaller number of locations'* (Sindbæk 2007, 71). It is certainly a question whether this theory should be applied to all kinds of trade and goods, but combined with theories of identity markers this could be an important approach to the study of prestige products like samite silk.

Sian Jones stresses the value of cultural meetings as catalysts for ethnic markers. When people from different ethnic groups meet, this leads to self-reflective cultural comparison. It is through such meetings that diverse cultural ideas and praxis are passed down in the material culture, and thus become objectified ethnic differences (Jones 1997, 120). Consciousness about belonging thus appears through encounters with others. One could envisage that also trans-cultural encounters, for example between individuals of a particular social status, promote the same kind of consciousness. A meeting between high-status groups of different ethnicities could thus lead to exchange of status markers across ethnic boundaries. In the case of the exchange of silks, such goods were probably not used as a signifier of ethnic identity, but rather as a social marker that spanned ethnic boundaries.

We should look further into the cultural meetings that most probably took place between Viking-Age traders from Scandinavia and merchants delivering silk from the production areas. Cultural encounters promote consciousness of one's own belonging, but at the same time they also promote change. Consciousness of difference can show the way to new possibilities that had not previously been recognised. In this way, cultural encounters become both self-acknowledging and dynamic.

Conclusion

Textiles of silk found in Scandinavian graves from the Viking period should be regarded as high-status markers of the most superior level. In spite of great differences in use and meaning, there is reason to believe that precious silk had a role in underpinning authority in the far-northern areas of consumption, in Christian European centres, and as in the areas of production in the east.

There is also reason to believe that silk fabrics found in the Oseberg mound came to Vestfold in eastern Norway either through a network of trade and goods-exchange, or as diplomatic gifts. A small network of merchants was probably key to both transportation and to the mediation of the cultural understanding of silk as a high-status marker in early-medieval Europe. In a society with a small, tight network of exchange, there may not have been a clear distinction between economic relations and diplomatic gift exchange. It may be argued that knowledge of the social, aesthetic and economic value of status products such as silk was communicated across ethnic boundaries through economic interaction.

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Chapter 13

The soapstone vessel production and trade of Agder and its actors

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Sites dating to the last part of the Scandinavian Iron Age, the "Viking Age" (*c*. 800– 1030 AD), are in Norway characterized by a near total absence of pottery sherds and vessels (e.g. Stylegar 1999, 243). There are examples of iron pots and wooden vessels, but soapstone is the dominant material in archaeological assemblages of domestic cooking and storage vessels. Indeed, soapstone vessels seem to have completely replaced local pottery production in Norway (Petersen 1951, 380; Lossius 1977, 13), and every Viking-Age household probably included one or more examples of such vessels. A chronologically significant characteristic of Norwegian soapstone vessels is that they do not appear at all in archaeological material dating to the period between the pre-Roman Iron Age (*c*. 400 BC–0 AD) and the Viking Age (Skjølsvold 1961, 12; Pilø 1990). Although vessels were produced continually into the medieval period (*c*. 1030–1537), they were usually typologically different from the Viking-Age types (cf. Lossius 1977, 50). The character of production and distribution of soapstone vessels seems to increase in magnitude during the Viking Age, from a rather limited beginning in the first half of the 9th century, to widespread distribution networks and large quantities of affordable commodities in the 10th century (cf. Schou 2007). This increase coincided with a general expansion in the production and trade of such goods in Scandinavia as a whole (e.g. Christoffersen 1991; Näsman 1991; Sindbæk 2005), as well as changes

in associated structures such as means of transportation (Näsman 1991, 37) and payment (Hårdh 1996). Central to these changes were the actors, who, I would argue, through routinized practice institutionalized the whole process from quarries to consumers. This article aims to present one particular temporally and spatially regionalized process – the Viking-Age production and distribution of the soapstone (henceforth colloquially termed *the soapstone trade*) of the Agder region in South Norway, with a focus on the area around the old parish of Fjære – and three groups of actors that the archaeological material suggests were involved.

Geographical description

Agder is today divided into two counties – Aust-Agder and Vest-Agder – with several towns, lying primarily along the coast. However, settlement in towns is in general a recent development in Norway, as before the industrial revolution the vast majority of the population lived in clustered or isolated farms and farmsteads scattered throughout the country. This is particularly true for the Agder region, with its long, roughly southward-flowing rivers moving through valleys, each more or less completely separated by characteristic steep, densely forested hills (e.g. see Figure 13.2), dotted with small lakes and bogs. Given these topographical hindrances, the coast has traditionally provided the most practical communication route when moving in an east-west direction, while river valleys constituted the better choice for traversing between north and south. The best agricultural land is situated along the coast, and the mainland coast itself from Lindesnes eastwards is incised by numerous inlets, bays and coves, in many places sheltered from the open sea of Skagerrak by islands and skerries (cf. Schou 2007, 3–4).

The topography of Fjære

The Agder coast has thus long provided traditional shipping with excellent anchorages. One of the best is Vikkilen in Aust-Agder (Wikander 1985), which during the Viking Age was the boat landing (Norse *stóð*) for several large farms lying along a fertile ridge of moraine between the sea and the steep hills behind (Figure 13.1). Today, Vikkilen is the harbour of the town of Grimstad (pop. 20,000), but in the Middle Ages the area was instead divided into the two

agricultural parishes of Fjære and Landvik, which here will be termed *the Fjære-area* (cf. Schou 2007). The river emptying into the sea near the Fjære-area is called Nidelva. It stretches northward to 210 km inland, and crucially provides a potential transportation route for a multitude of commodities produced in the forested hills and mountains of Aust-Agder right up to the 20th century. Although a large and relatively powerful waterfall called Rygene hinders unbroken travel from the interior to the coast, a viable option would have been to sail or row into a large lake called Rore, just before Rygene, an option which was exploited when floating timber in the 18th–19th century. From there, the Fjære-area and the coast were easily accessed (cf. Schou 2007, 73–74). As will be argued below, the Fjære-area is central to the understanding of the soapstone vessel trade in Agder and potentially also for other regions bordering on the Skagerrak sea (cf. Schou 2007). However, before presenting the actors of the Agder soapstone trade and their activities, a consideration of some theoretical and contextual issues relating to the character and development of the structure of the trade is necessary.

Figure 13.1: The area known as Fjære, where today the modern town of Grimstad is situated. The three medieval churches shown were each centres of their own parishes, but for simplicity, in this article the area as a whole is termed 'Fjære' or alternatively 'the Fjære-area'. Some central farms and topographical features are also shown here. Additionally, some minor modifications of the Viking-Age water level in the area are indicated, most notably in the two lakes Reddalsvannet and Landviksvannet.

Routinized practice and communication lines

Structures

People behave contextually within the sphere that is limited by their biological lives and technological situation, and they do not necessarily comprehend the full extent of the consequences of their actions. This is conceptualized in Fernand Braudel's terms *durée* and *longue durée*, associated with French sociology of the 20th century (cf. Giddens 1984, p. 362). Actors act according to their own personal choices, *durée*, albeit within a context which the action itself can only partly affect, and stretches beyond the life-span of any individual human being, *longue durée* (Giddens 1984, 35; Sindbæk 2005, 24). Groups of individuals could as actors constitute immaterial structures, which through repetitive actions act both as a medium for and as a result of the practice they structure – the *duality of structure* (Giddens 1984, 25). This is the foundation upon which social patterns and relations emerge and are maintained.

Sindbæk (2005) has shown how this framework could fruitfully be applied to the development of the complex network of production and distribution of Viking-Age and early-medieval commodities. He argues that in a given context, relational interplay of many individual actors create networks with lines meeting at certain nodes, where actors emerge capable of wielding more social or economic power than others further down in the system (Sindbæk 2005, 25). Associated with the social and economic structures of the Viking Age is also the concept of routes and routinized practice, a manifestation of which is evident in the hollow way shown in Figure 13.2. Routes are not merely based on unchangeable features of topography (such as valley corridors, for instance), but also on social structures (Sindbæk 2005, 30–31). It is the repeated and structured social practice of routinized communication that realizes routes as social institutions (Sindbæk 2005, 32). In a pre-industrial world, the actions of actors were particularly limited both by social structures and physical geography (Giddens 1984, 112; 123).

Figure 13.2: Above-ground profile of a structure created by repeated practice. This hollow way was discovered during a survey by the author. It leads down from quarries at Hisåsen (see Figure 13.3) towards the shore of a small lake connected to the larger Reddalsvannet (see Figure 13.1). The rugged terrain in the background is quite typical of Agder.

Regionalization and institutionalization

Routinized communication has the potential to change social practice. In particular, the political or economic conditions in a given area are subject to its placement within a network of contact and distribution (Sindbæk 2005, 42–43). Directly or indirectly, various areas or regions are pulled into a trading network through the involvement of local actors who are situated along a route of communication (Sindbæk 2005, 38). This centripetal force crystallizes various regions and zones connected to the network into relative and defined hierarchies of centres and peripheries, termed *regionalization* (cf. Giddens 1984, 130). The repetitive practices of communication and trade also stimulate the growth of structural principles and social systems, binding actors over space and time – a process called *institutionalization*. Giddens divided structural principles into *authoritative resources* (organizational aspects which control actors and, for example, crystallize them into specialists or leaders) and *allocative resources* (economical institutions which provide control over, for instance, raw materials and land), and *rules* (laws, regulations, or standardized weights or means of payment) (cf. Giddens 1984, 181–185; see also Sindbæk 2005, 39–41). Both types of resources structure social patterns, but importantly, resources are not structural principles until the preconditions for them to emerge are present, and structural processes transform them (Giddens 1984, 33–34). Thus, in the context of Viking-Age relations, soapstone quarries could not provide more than very limited economic or political advantages until they were connected to the whole systemic network of southern Scandinavian production and distribution. However, after initial contact, both the regionalization and institutionalization of the soapstone trade progressively expanded within the structure of commodity trade, both stimulating and being stimulated by the general expansion of the economic system.

This framework of social, economic and geographical aspects is the backdrop within which the archaeological material must be interpreted. Actors associated with the soapstone trade can tentatively or actually be identified in the material from the Fjære-area and surrounding regions. In the following sections three groups of individuals will be discussed: the producing, the organizing and the

consuming actors of the Viking Age.

Actors and production

The soapstone quarries

The arguments presented in this article rest on the observation that the allocative resources necessary for structuring the soapstone trade are found in a very limited area. All of the known soapstone quarries in Agder are either located in the hilly region through which the river Nidelva runs, or lie close to tributary waterways (see Figure 13.3). With the exception of the quarry at Tøra (Figure 13.3: 2), which shows soapstone of poor quality and little or no exploitation, production at all sites seems to have been characterized by large-scale extraction, at some places bordering on an "industrial" scale. Especially at Sparsås (Figure 13.3: 5), Austre Vimme (Figure 13.3: 6) and the cluster of quarries at Hisåsen (Figure 13.3: 1), massive waste heaps were reported by Arne Skjølsvold in his influential studies of the Viking-Age soapstone industry in Norway (Skjølsvold 1961, 59–64, 1979). At Austre Vimme, he measured a waste heap to have a footprint of 50 × 20 m, and supposed that it originally towered as high as 8 m (Skjølsvold 1979). Such dimensions are suggestive of operations on a truly industrial scale. The profile of the heap showed three discrete "stripes", indicating three phases of activity. It is thus possible that production of soapstone vessels at Austre Vimme and indeed other quarries continued from the Viking Age into the medieval period, although Skjølsvold argued that the activity ceased not long after the latter period (Skjølsvold 1979).

The quarries preserve a number of traces from the actors that worked them. In addition to the large heaps of waste, several quarries show numerous unfinished or broken vessels. These can be observed in their hundreds, as well as chisel marks and vessels still attached to the rock faces up to a height of 6–7 m. In some quarries, tools of the trade have been found, including wooden ladders, clubs and iron chisels (cf. Schou 2007, 47–51). At Hisåsen, for example, wooden scaffolding was presumably used in order to facilitate access to all areas of the rock face, and to maximize extraction from the soapstone vein (Skjølsvold 1961, 74). Another indication of economical use of a limited resource is the observation that vessels could be hewn with their openings facing either inwards or outwards with respect to the

rock face (Schou 2007, 62). Generally, vessels appear to have been finished and polished at localities somewhat removed from the extraction sites. This is attested by quarry finds of unfinished objects, together with the presence of unfinished sets of vessels close to points at which transfer from local to regional modes of transport was necessary. The pots were more resistant to breakage when transported in an only roughly finished state, and were probably soaked in water or bogs to ease the finer internal polishing closer to their intended markets (Lossius 1977, 62; Skjølsvold 1961, 83–92). On the other hand, Skjølsvold (1961, 86–87) argued that this last piece of the production process was indeed carried out in or near the quarries, rather than on the surrounding farms, as in his investigations he found large numbers of sherds and finished vessels in the waste heaps.

Figure 13.3: Map of the Agder region in the southernmost part of Norway, showing primary river valleys and central areas from the Viking Age. As can clearly be seen from this map, all the soapstone quarries known from Agder are located along the river Nidelva or near Fjære. The larger diamonds denote two quarries, while the smaller indicate individual quarries. The quarries are: 1. Hisåsen, 2. Tøra (see text), 3. Øyestad, 4a. Blakstad, 4b. Brattelands-åsen, 5. Sparsås, 6. Austre Vimme, 7. Østre Myre, 8. Skåtøy (see text).

Typology, chronology and standardization

One particularly important stray find from the Fjære-area illustrates this phenomenon. In the fields near the Hafstad farm, on the isthmus between the lakes of Reddalsvannet and Landvikvannet, five soapstone vessels were found. The vessels were all of different sizes, and were nested together like a Russian *matryoshka* doll (Figure 13.4) (Skjølsvold 1961, 89–90; cf. Schou 2007, 43). The vessels undoubtedly came from the Hisåsen quarries, and had not yet been polished at the time of their loss, a very common, albeit not ubiquitous, refurbishment on the inner surface of soapstone pots (cf. Vangstad 2003, 64; Baug 2011, 315). Presumably they were left to soak, but were subsequently forgotten. In 1878, at Froland (*c.* 7 km upriver from the Fjære-area, down the transport line from the Brattelandsåsen quarry – see Figure 13.3), another set of three pots was found (Skjølsvold 1961, 90–91). These examples indicate the existence of a practical sense for both transportation and storage, as well as standardization of the manufacturing process, and the spatial separation of the various stages in the production line. However, if Skjølsvold was correct in arguing that most vessels left the quarries in a finished state, these finds may conceivably represent votive deposits or extraordinary cases of unknown purpose. Typologically, Viking-Age soapstone vessels also seem to indicate a large degree of standardization. Just three key types are recognized: R728, R729, and R730 (cf. Rygh 1999 [1885]). The bowl-shaped R729 (see Figure 13.4) is by far the most common type, with over 500 examples known from Norwegian Viking-Age contexts (Risbøl 1994, 122). Although both R728 and R729 are found throughout the Viking Age, many more examples are known from dateable 10th-century contexts than from the preceding century (for example, there are over six times as many examples of R729 in 10th-century contexts – cf. Skjølsvold 1961, 29), while the last type (R730) is *only* known from the 10th century (Petersen 1951, 362; Risbøl 1994, 122). Intriguingly, as will be argued below, this increase in production from the late 9th and into the 10th century temporally coincides with an expansion in other trade-related phenomena, such as use of hacksilver, trading vessels, a standardized weight system, and the import of Arabian silver. Thus, although there may very well be practical reasons for the high degree

of standardization observed in these vessels, institutionalized mass-production seems just as likely an explanation.

Figure 13.4: Set of soapstone vessels found at Hafstad near Dolholt, surely originating from the Hisåsen quarries. They have not yet been polished and were presumably put in water to soak and soften, possibly as part of the production process. A mark has been carved into the third pot; this is interpreted as some sort of stone cutter's mark (see Figure 13.5). (Photo by Museum of Culture History, University of Oslo).

However, the most evocative indication of a producing actor from the Agder soapstone trade is a stone cutter's mark. On one of the five pots shown in Figure 13.4, a groove had been cut into the rim, very similar to the stonemasons' marks known from the Middle Ages. To date, this practice has only been observed on soapstone vessels from the coast of South Norway; only two other examples are known (Figure 13.5). These were found at Flekkefjord in the western-most part of Agder, and at the quarry of Skåtøy, near the border between Telemark and Agder (see Figure 13.3: 8) (Skjølsvold 1961, 101–103; Schou 2007, 61).

Together, the morphological standardization of vessels from the Agder area, the pragmatic approach to storage and transport, the evidence of massive waste heaps, and the recognition of cutters' marks conspire to suggest that the soapstone trade in the region was a lively and institutionalized activity (Schou 2007, 62). There has been some discussion about the actual identities of the actors working in the quarries. Some scholars have suggested that the resources belonged to the nearest farms or farmsteads, and that vessels were produced as part of the annual agricultural cycle, while others have argued (for the reasons outlined above) that most soapstone vessels were carved by specialized craftsmen. Skjølsvold referred to these artisans as 'pot smiths' (No. *grytesmeder*), and suggested that they worked for more powerful actors who owned the rights to the resource (Skjølsvold 1961, 99–100). Based upon the same material, with particular reference to the stone-cutter's marks and the industrial-scale production characteristic of the region, I have also argued that the latter of these theories is the most plausible one (cf. Schou 2007). But who were these powerful actors controlling Agder's soapstone production? There are several indications that they were actually situated in the Fjære-area.

Figure 13.5: Carvings found on the rims of three soapstone vessels from Agder. The pots are (from left to right): from Flekkefjord; Fjære (see Figure 13.4); and Skåtøy (see Figure 13.3: 8). These are the only examples from Norwegian contexts with this feature, which has been interpreted as some sort of stone-cutter's mark. (Image modified after Skjølsvold 1961, 101–103).

Actors and organization

Regional transport of soapstone vessels

As outlined above, it is not topography in itself that constitutes routes, but the repeated practice of transport and trade carried out by people. Thus, the spatial proximity of quarries to the Fjære-area does not automatically determine the direction of the transport lines, although several aspects heavily imply that the focal point for this trade indeed was the Fjære-area (cf. Schou 2007, 64–66). The "vessel sets" at both Hafstad and Froland were found at points along the natural communication lines directed *towards* the Fjære-area. These are conspicuous features of Norwegian topography, which perhaps are not as clearly defined in the flatter landscapes of continental Europe or the British Isles (for instance, compare the difference in topographical relief between the Norwegian and Danish areas shown in Figure 13.12 below). The sets were also both associated with waterborne modes of transport, which is overwhelmingly more practical than land-based modes, considering the great weight of these commodities and the rough and rugged topography of Agder (Figure 13.6). The location of a hollow way at Hisåsen leading directly from the quarries and down to the nearest lake from which boats could have been launched underlines the argument that the direction in which the products were transported from the quarries was towards the Fjære-area (see Figure 13.2). It represents the physical remains of a structure created through repeated use of a transport route. Thus, the waterways of Agder have seemingly been used at least since the Viking Age to transport affordable, mass-produced goods towards more densely populated areas on the coast.

Late Iron Age central places

Viking-Age Norway was almost entirely rural, with farms and farmsteads of moderate to small sizes dominating the settlement pattern. Some minor towns did emerge during the period, most prominently the market town of Kaupang in Vestfold, but most people lived in groups of more or less scattered farming households. However, as in most societal systems, the relative network of hierarchical settlement patterns meant that some areas were 'nodal', and retained more centrality than others, featuring institutions and

structuring aspects of both centripetal and centrifugal character. Such areas are commonly termed *central places*, and they have been subject to increasing focus in research over the last 20 years (e.g. Fabech and Ringtvedt 1995; Fabech 1999; Hedeager 2002; Skre 2007). There are a number of ways to identify the presence of a regional central place, but in the context of the soapstone trade I will focus on two aspects: communication lines and socioeconomic power (cf. Schou 2007, chapter 6). The accumulation and storage of resources is an important mechanism in the acquisition and maintenance of power (Giddens 1984, 261). Power is in this context not necessarily connected to physical repression or conflict, but rather as social or economic power it has the potential for achieving results, and is usually an institutional prerequisite for organization (Giddens 1984, 252).

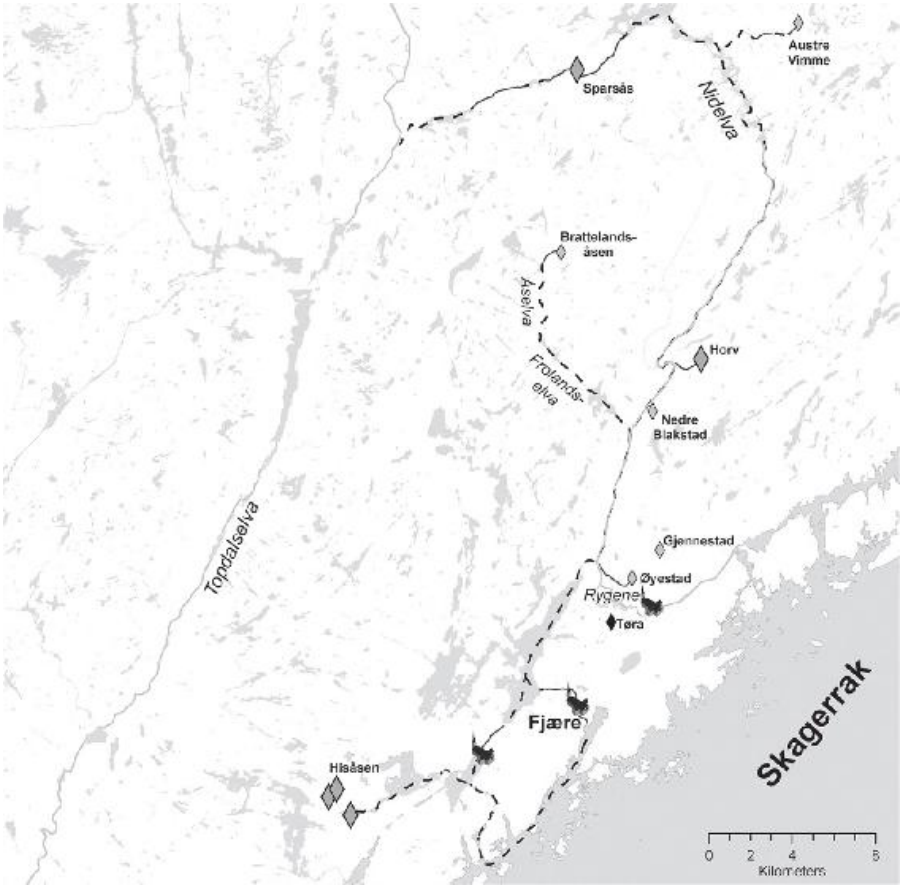

Figure 13.6: Map of the region in which the Agder soapstone quarries are found. It is clear that as waterborne transport is the most practical way of moving products from the quarries, the river Nidelva and associated waterways must have constituted the main routes. The Rygene waterfall posed a natural barrier which, as was the case for timber floating in the 19th century, was probably avoided by sailing into the large lake of Rore.

The communicative aspect

Firstly, as the topography of South Norway is quite rugged, there are only so many corridors of communication that would have been open for travel by land in pre-industrial times. Hills, hillocks, mountains, marshes and lakes structured paths and roads to limited areas. For this reason, most routes that were frequented in rural 18th-century Norway were structurally continuous, and had persisted unchanged from at least the medieval era, and possibly since the Iron Age (Engesveen 2005, 16). Indeed, the Gulating laws (Norse *Gulatingslagen*, which in their written form date to the first half of the 12th century AD, but with many parts originating in the 11th century and possibly earlier) stated that roads should pass where they had done since times of old (Steen 1934,217; Helle 2001, 43– 47). I have mapped the distribution of grave mounds in the Fjære-area, to study how these related to the known roads running through the area in the late 18th century (Figure 13.7). A relationship between grave markers and communication lines is common to many prehistoric and historic cultures. Research has shown that graves dating to the late Norwegian Iron Age often relate to and face (1) long-distance overland communication lines, or (2) major sea lanes (Knutzen 2004; Engesveen 2005, 122). The picture emerging from Figure 13.7 is one of very high correlation between grave mounds (both isolated and clustered) and later routes in the Fjære-area, which strongly indicates structural continuity back into the Iron Age. Due to the presence of the Vikkilen and steep hills lying along the inward rim of the agricultural land, a further pattern is strikingly clear. All communication along the roads of this region *had* to pass through the large Fjære farm, meeting at the property on which the medieval church of Fjære was built in the early years of the 2nd millennium AD, and on which several richly-furnished graves of the Viking Age have been excavated (cf. Nicolaysen 1878; for an overview of the material, cf. Schou 2007). Just east of Fjære, on the moraine upslope from the bottom of Vikkilen, lie two more major farms, Bringsvær and Vik, both of which also preserve large clusters of Iron-Age grave mounds. The context of property boundaries and the relations between these three farms in the Viking Age is unclear (Schou 2007, 38), but their centrality in relation to the surrounding farms may be inferred from

the grave clusters and communication lines. When taken together with the fact that Vikkilen was a major regional harbour and safe haven from the Middle Ages onwards (Steen 1934, 220), and the argument that most river transport from the interior ended here, the Fjære-area truly stands out as a central place for communication.

The social and economic function of a central place

Secondly, Viking-Age material from excavated graves in Agder not only shows that the Fjære-area stands out from the rest, but also indicates that economic and social power were focused especially on the Fjære farm, as well as the neighbouring farms, Vik and Bringsvær. However, there were other powerful actors within this area (Figure 13.8). Bergljot Solberg (1985) presented a method (based on certain medieval laws) by which Viking-Age male burials may be classified into status groups according to the number and character of weapons with which the dead person is associated. For instance, those with highest social (and presumably economic) power contained an axe, spear and sword, and usually also a shield. When this phenomenon is mapped for the Agder region as a whole (Figure 13.9), it is evident that much power was concentrated in the Fjære-area, but that within this central area (Figure 13.8), there seem to have been several actors present, possibly within a contemporary hierarchy. Closer examination by studying weapon typologies (cf. Petersen 1919) does provide some temporal division, as the status burial at Dolholt was laid down in the early 9th century, whereas the remainder date from the first half of the 10th century.

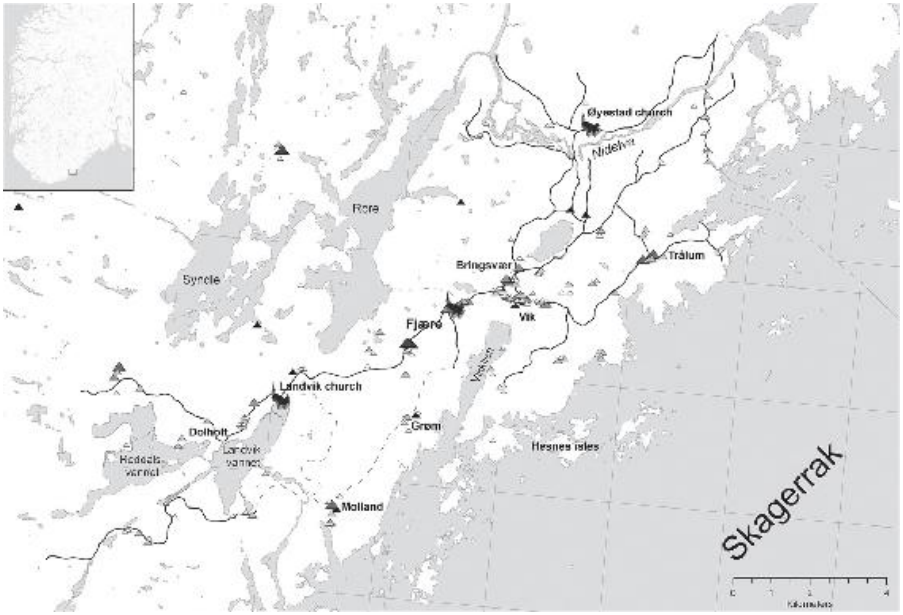

Figure 13.7: Map showing the relationship between grave mounds and land routes. The solid black lines indicate routes known from 18th-century maps, while the dotted lines indicate probable routes now lost due to the growth of the modern town of Grimstad. The increasingly large triangles denote increasingly larger clusters of grave mounds, respectively 1 (small white triangle), 2–5; 6–10; 11–15; 16–25; and over 25 separate grave mounds (large dark triangle). The small black triangles indicate grave mounds that are only approximately located.

This is also the case with regard to the other type of archaeological material we should consider in this context – scales and weights. Foldable scales of insular (i.e. British) type have been typologically placed in the period *c*. 880–1000 (Jondell 1974, 33), and are found in Viking-Age contexts often associated with trade (Larsen 1986, 111; although the picture may not be so straightforward, cf. Pedersen 2000, 97–103). However, weights and scales have clear associations with the proto-monetary system of hacksilver that emerged in Scandinavia in this period (Hårdh 1996, 18), and do suggest some form of economic activity, albeit possibly in connection with administrative capacities. When graves containing these objects are mapped (Figure 13.10), the Fjære farm stands out, with two foldable scales and weights from graves. The aforementioned Dolholt grave also contained part of a scale, but whether this was of a foldable type or a simpler, earlier type is not certain, so the early date of this burial (inferred on the basis of weapon typology) still stands. Another farm, Trålum, could still boast Early Iron-Age grave mounds of enormous proportions at as late a date as the 19th century, and here an imported sword of considerable value was found in 1842. The sword was dated to the 9th century, and is indicative of the presence of a powerful actor in the early Viking Age. Later in the period, however, burials do seem to have become more modest (Schou 2007, 35).

Thus, there does seem to be a tentative diachronic development from several powerful actors in the 9th-century Fjære-area towards a concentration of social and economic power in fewer hands, located on farms situated on the moraine over Vikkilen. Of course, a larger corpus of material would be needed to verify such a pattern, but this development does coincide with a general expansion in the trade of affordable commodities in the Norse cultural area, and (as mentioned above) with a greater than sixfold increase in the distribution of soapstone vessel-type R729 in Norway. I have suggested (Schou 2007) that these two phenomena were not unrelated, and that control over the soapstone trade provided actors in the Fjære-area with economic and social advantages as the general trade network expanded and attained a higher degree of institutionalization, connecting the producing and organizing actors with an ever-expanding market of consumers.

Figure 13.8: Map showing distribution of status graves in Fjære: respectively one weapon type (small black dot), two weapon types (medium grey dot) and three weapon types (large, dark grey dot).

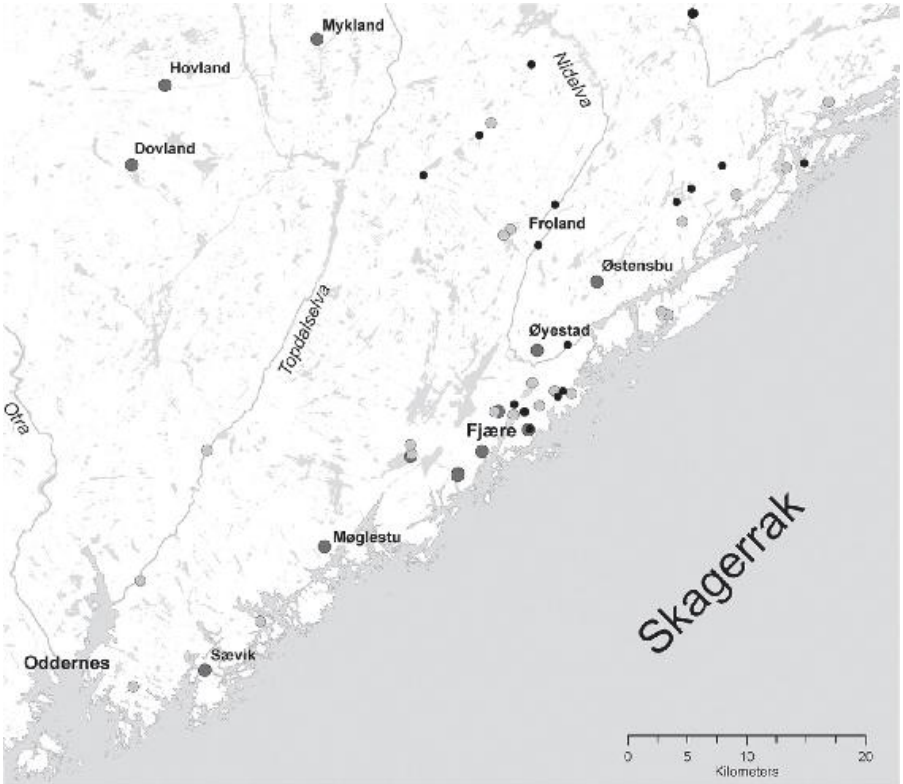

Figure 13.9: Map of south-eastern modern Aust-Agder, showing the distribution of status graves for the region as a whole. Key as in Figure 13.8. The cluster of graves in Fjære is striking.

Actors and consumption

A key ‘push’ factor in any development toward a market economy is the expansion of transportation and communication (Giddens 1984, 192). The Viking Age is characterized as a period of economic transition: between the 8th and early 9th century the economy seems to have been based upon reciprocity and redistribution, just as it was in the preceding Iron Age. However, by the mid-10th century, the economic system had integrated traits associated with medieval market economies (Skre 2000, 169). This development coincided with an expansion of the trade in affordable commodities, but mass-production would not occur without the incentive of a market consisting of an anonymous mass of consumers. Thus, activity in the quarries along Nidelva and at Hisåsen was probably dependent on the network of contacts and nodal structure provided by the central area of Fjære (Schou 2007, 80), and the specialized trade network itself was probably also dependent on cooperation with powerful local actors (Callmer 2002, 155).

Figure 13.10: Map of the distribution of scales (triangles), weights (diamonds) and combinations of scales and weights (circles) in Viking-Age graves in the Fjære-area. The scales from the Dolholt farm were recovered from a 9th-century context, while the rest are from the 10th century. There is a clear cluster around the Fjære farm and medieval church.

Transport technology in the Viking Age

Trade networks of a systemic character were, however, also dependent on technology and the institutionalization of associated aspects of the trade. The system that emerged in the late 8th century expanded during the 9th to include increasingly large areas of northern European society, characterized by commodities like soapstone vessels, iron, whetstones and quernstones (Christophersen 1991, 160; Baug 2006, 6). It developed to become a complex hierarchical network of regions, nodes and routes, connected to central political and economic regions in Western Europe and the Near East (Hårdh 2003, 49; Sindbæk 2007, 119), and reaching full bloom in the 10th century. Development within the transport sector was an inevitable product of the increasing focus upon high-bulk, low-cost commodities (Näsman 1991, 37), as well as a progressive factor feeding back into the system which again re-expanded. This led to a development tentatively traceable in the archaeological material in Southern Scandinavia, wherein excavated ships known from the 9th century are dominated by warships (such as the *skeið*), while ships dated to the 10th century and later show an increasing focus on carrying-capacity (clearly evidenced in the specialized trading ship known as the *knarr*) (Crumlin-Pedersen 1991, 75; 1999, 12). It is possible that this development went hand-in-hand with a reduced risk of raiding and plunder, symptomatic of the Viking raids of the early 9th century, as the trading system was consolidated through institutionalization and routinization (Schou 2007, 83).

Economic developments during the Viking Age

Integration of a central place within this system could also lead to economic changes, moving it into a proto-monetary economy with standardized means of payment, which as mentioned above is indicated by the presence of scales, weights and hacksilver. This system of weighing silver for payment grew up in parts of Scandinavia after *c*. 850 (Hårdh 1996, 25–26). Closer to the turn of the century, actors in larger parts of southern Scandinavia started using the same standardized system of measurement, so the system itself functioned as a guarantee in transactions, similar to the later function of currency (Hårdh 1996, 60; Sindbæk 2005, 46–48). This also coincides with the

culmination of import of Arabic silver *c*. 890–950 (Skaare 1976, 52), indicating that the system was sufficiently institutionalized to become generalized practice, rather than existing as a series of isolated incidents. Thus, multiple lines of evidence relating to the trade in commodities suggest that the system acquired the prerequisites necessary to reach its full potential from *c*. 900, and progressively developed during the 10th century. However, it must be pointed out that development merely indicates movement *toward* principles of market economy, and that Skre's (2007, 344) *commodity-money system* still persisted to a large degree.

Consumers around Skagerrak

Although the quarries shown on Figure 13.3 are the only examples known in all of Agder, sherds and vessels made from soapstone have been found throughout the region in settlement and burial contexts, as well as stray finds. Other than those shown in Figure 13.3, the soapstone veins nearest to the western parts of Agder are found in northwestern Rogaland (cf. Skjølsvold 1961, 136–140), so it seems likely that most of the Viking-Age households in Agder received their pots and vessels from the Fjære-area. As shown in Figure 13.11, soapstone vessel finds are clustered in particular spots along the coast. These places, such as Lyngdal, Lista, Spangereid and Oddernes, are generally known as central settlements in the Viking Age, and some can certainly be associated with early-medieval church buildings (e.g. Stylegar 1996, 32; 1999, 308–310; 2006, 268–272). Thus, the distribution network seems to have been connected to powerful actors on the recipient *consumption* end, as well as at the *production/organization* end of the process. The distribution pattern also suggests that peripheral, inland parts of the region were most likely connected to the network via these central local actors, as finds have been recovered from localities along the rivers towards the interior, as well as along the coastline.

In the Viking Age, the key Norwegian town and market bordering the Skagerak was Kaupang, Vestfold (cf. Skre 2000; 2007). However, even though numerous soapstone vessels and sherds have been found in Viking-Age settlements and burials in Vestfold, no quarries are known in the county (e.g. Baug 2011, 329). The nearest example lies on the island of Skåtøy on the coast of Telemark (see above and Figure

13.2: 8), and this is the only quarry between the Fjære-area and Kaupang. Other than this example, quarries are only known from far inland in Telemark, in Akershus, or across the *fold* (the old name for the Oslo fjord) in Østfold (cf. Skjølsvold 1961, 136–140). Based on provenance analyses, Baug (2011, 330–331) suggested that the source of the soapstone in the Kaupang assemblage should probably be sought in southeastern Norway, including the Fjære-area. Intriguingly, she also noted that the analyses point to a single quarry site providing the origin of the Kaupang vessels (Baug 2011, 334). Like Vestfold, soapstone vessels and sherds have also been found throughout Denmark, despite this country not having any naturally occurring soapstone itself. By far the greatest quantity has been found at Hedeby (Haithabu), the largest town in Viking-Age Scandinavia, but in contrast to the situation at Norwegian sites, pottery is ubiquitous in Denmark. The soapstone fragments found at Hedeby have tentatively been traced by mass spectrometry to the quarries of western Sweden or possibly Østfold (cf. Alfsen and Christie 1979, 171–172), although this method is now relatively dated, and is not entirely conclusive. Sherds and vessels found in northern Denmark and around Limfjorden (cf. map in Sindbæk 2005; Schou 2007, 58, fig. 5.3) could just as likely have come from Fjære. One day's travel by ship in the Viking Age has been calculated to be *c*. 130 km (Crumlin-Pedersen 1983), which incidentally is just about the distance from Fjære directly to the northern coast of Denmark, *and* the distance from Fjære to Kaupang (*c*. 115 km as the crow flies, though in practice somewhat longer if journeying by sea). This could have structured the position of Fjære in the existing trading network, and consolidated its role as a nodal point associated with communication and trade: all of which was founded on the activities of its powerful actors. From the medieval period we know of four major harbours on the coast between Vestfold and the south tip of Norway (Lindesnes) – Portør, Hesnessund (Fjære), Randesund (near modern Kristiansand), and Hellesund (Steen 1934, 220). If a traveller set out from Kaupang, but opted for anchoring at Randesund instead of Fjære, he would have needed to sail *c*. 40 km longer than a day's journey, possibly risking both crew and cargo (Schou 2007, 72). Again this suggests that Fjære had a more prominent position in the trading network than other harbours along this particular part of the coastline (Figure 13.12).

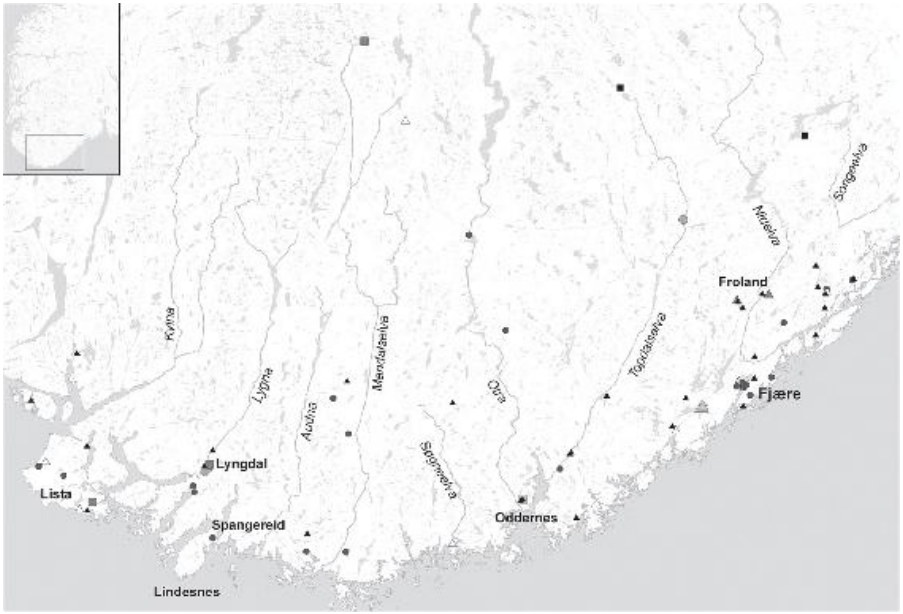

Figure 13.11: Map of Agder, showing Viking-Age soapstone finds in the region as a whole. See Figure 13.3 for distribution of quarries in the same region. The distribution suggests a pattern of clusters in central areas, and distribution into the interior along the river valleys. Triangles indicate stray finds of sherds or vessels, circles indicate vessels as grave goods, and squares indicate sherds found in settlement contexts. Sizes of figures indicate increasing quantities of material, from one to five and more.

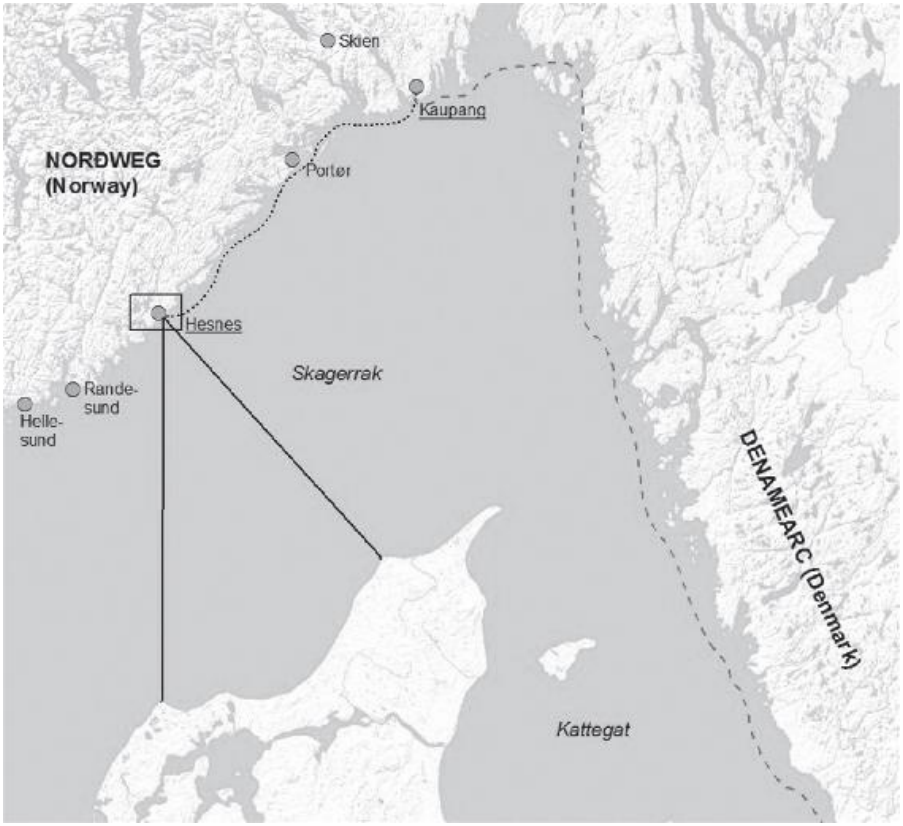

Figure 13.12: Map of probable routes along the rim of Skagerrak during the Viking Age, indicating the main harbours along the Agder coast known from medieval sources, as well as Kaupang in Vestfold, and the medieval town of Skien. The distance between Hesnes and Kaupang, and Hesnes and the northern Danish shore is shown using dotted and solid lines respectively. Note the difference in topographical relief between Norway and southern Scandinavia, indicating the much more rugged natural landscape in the former region. (Map redrawn after Crumlin-Pedersen 1983, 36).

Possible modes of distribution

Finally, I will discuss the mode of distribution: how soapstone vessels from the Fjære-area most likely came into the hands of their consumers. As discussed above, the vessels seem to have been transported from Fjære to one of the other regional nodes, and from there distributed to hinterlands and inland settlements along the river valleys. I would argue that there are three main alternatives as to how the commodities travelled between the nodes in this network:

– Actors associated with distribution actively sought commodities by travelling to Fjære, and acquired them by trading with the appropriate people there (probably the actors organizing the soapstone trade).
– The actors at Fjære who were associated with the organization of the soapstone trade themselves loaded their produce aboard ships, and travelled to other regional nodes for further distribution.
– The actors at Fjære transported their produce to regional nodal markets such as Kaupang, where commodities were further distributed along the lines of the trading network. Alternatively, independent traders could have acted as middlemen, sought various commodities at Fjære and other places, and subsequently transported them to their consumers.

It may prove difficult to ascertain which of these alternatives is most likely, or indeed if all of them could have been in action at any one time. However, there is one indication that people came *to* Fjære to acquire soapstone vessels, either as direct consumers or as independent middlemen. The name of the medieval harbour of Hesnes refers to the safe haven of Vikkilen. In fact, the name 'Hesnes' is derived from Norse *Esjunes*, wherein the first component *esja* is Norse for soapstone (cf. Rygh 1905, 119). Thus, the meaning of Hesnes and the Hesnes isles (see Figure 13.1) – topographical features that may have been identified as waypoints on the route by which a traveller would have navigated – is "*soapstone promontory*". The peninsula itself does not contain any naturally occurring soapstone at all, and thus it seems unlikely that the name was given to the natural feature by locals in Fjære. Instead, it would rather have been given the name by actors travelling along the sea lanes, denoting a point and haven along

the route where soapstone products were available and could be acquired. This to me seems a strong argument in support of the hypothesis that the soapstone trade in Agder was channeled via – and probably also organized by – powerful actors in the Fjære-area.

Conclusion

The soapstone trade in Norway was an industry providing an increasingly large consumer market with affordable goods, necessary for all Viking-Age households. The Agder region of South Norway was probably supplied with soapstone vessels originating in the forested hills along the river Nidelva, which were then channeled through the central settlement at Fjære on the coast, and organized by powerful regional figures inhabiting the large farms around the medieval church of Fjære. The trade employed actors on various levels through the process from quarry to consumer, incorporating production, transport, organization, control, and distribution. All such elements were structured within a limited trading network that emerged in the late 8th century, but which expanded in the 10th century via processes of institutionalization and regionalization. Although the actors as parts of the system were a result of this practice, they were also central to its development as individual agents with various degrees of influence, their own agendas and personal networks. This wide, systemic, hierarchical network of political and economic contact points, nodes and communication lines spanning Scandinavia, was indeed created, maintained and altered through the actions of its numerous actors and their relationships, supported by a foundation of structural rigidity. In Fjære, these actors were represented by the stone cutters and the wealthy farmers, while actors on a regional scale were the consumers of the Fjære soapstone vessels, probably represented by the general population of Agder, and possibly also Kaupang or hypothetically even Denmark.

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Chapter 14

Actors in quarrying. Production and distribution of quernstones and bakestones during the Viking Age and the Middle Ages

Irene Baug

Quarry landscapes make up some of the most visible cultural heritage sites in Norway, where the large-scale extraction of different stone products in some areas have led to complete changes of the original topography. The quarries are remains from hard and sometimes dangerous work. Different rock types offered resources and raw-materials that were exploited on a near industrial scale during the Viking period and the Middle Ages, and the different stone products, such as quernstones, bakestones and soapstone vessels, played an important role in everyday households. The quarries and their products thus constituted a crucial role in society and they give us insight into important aspects of daily life. Yet, the large-scale production of these products is only rarely mentioned in written sources. And, as most research on such sites have employed a technical, economic and descriptive approach to quarries and their products, little is known about the activity and the different groups of people involved in both the production and trade of the objects.

My aim is to illuminate the control and right of use connected with quarrying in the Viking period and the Middle Ages (*c*. 800–1500 AD), and to examine the groups of actors behind the quarrying as well as the distribution and trade of the different products. My project is

based on two different quarry sites on the west coast of Norway: one located in Hyllestad, Sogn og Fjordane county, the other in Ølve and Hatlestrand (Ølve/Hatlestrand) in Kvinnherad, Hordaland county (Figure 14.1). These are two specialised production areas which are based on different geological resources that make it possible for the extraction of ordinary but important stone products, where, respectively, quernstones/millstones and bakestones were of importance. However, both quarry areas also served additional purposes. In Hyllestad, the production included stone crosses, vessels, smoke vent stones and grave slabs, and in Ølve/Hatlestrand tiles and building stones were produced along with the bakestones. Traces of such production are evident at several places in the two quarry landscapes (Figures 14.2 and 14.3).

The production of quernstones in Hyllestad dates back to the *c*. 800s and the early Viking period, while the extraction of bakestones in Ølve/Hatlestrand goes back to *c*. 1030–1100 and the early Middle Ages. Both production areas are remains of a quasi industrial activity with the serial production of objects. From the late Viking period (*c*. 950), quernstones were extracted for a larger market, and a wide distribution of bakestones is evident from *c*. 1050–1100 (Baug 2013).

An important question to be investigated is whether the quarries were under private control and at the disposal of landowners or were situated on common land and exploited by local people living in the area. Who organised and administered the production and distribution of the different products? The aim is to assess the social, political and organisational relations of this kind of large-scale quarrying and distribution, and as far as possible to encircle the actors with control and disposal over the production landscapes and the products.

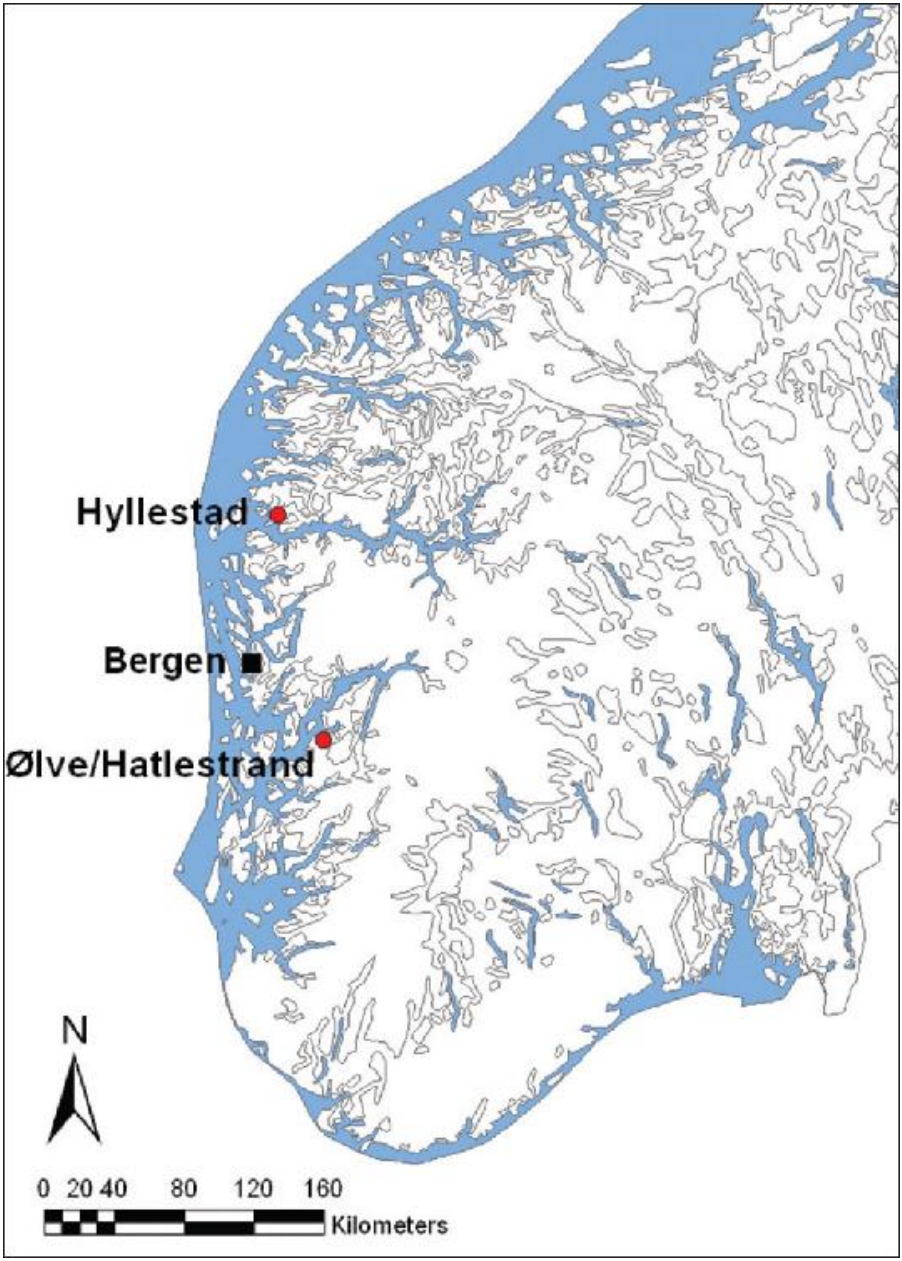

Figure 14.1: Location of the quernstone quarries in Hyllestad and the bakestone quarries in Ølve/Hatlestrand (Map by I. Baug).

Figure 14.2: Quernstone quarry in Hyllestad, Sogn og Fjordane (Photo by I. Baug).

Figure 14.3: Bakestone quarry in Ølve (Photo by A. O. Martinussen).

Private land or commons?

In Norwegian agrarian studies, the main production unit that has gained attention has been the so-called "named farm" (Norw. *navnegård*), a farm denoted by its own name (Øye 2004, 96). This unit also seems a relevant structure when discussing quarrying and use rights (Baug 2013, 248). Different types of ownership and use rights constituted important frameworks for quarrying. Quarrying mainly took place in areas outside habitation areas, properly denoted as *utmark*. The notion *utmark* lacks an equivalent in English terminology, but is often translated as *outfield, wasteland* or *outland* (Øye 2002, 361–362; 2005, 9–10). In the Middle Ages, the outlying areas close to the farm were an integrated part of the farm, while the more distant outfields were commons, denoted by the term *allmenning*, meaning areas for "all men" (Øye 2002, 362; 2005, 9–10). Most of the quarries in Hyllestad and Ølve/Hatlestrand are located in the outfield within different distances to the historical habitation areas of the farms. An important question is thus: were the quarries integrated parts of farm territories and within their control, or did they belong to what was defined as commons with common use of the resources? This is a rather complicated field of research. Here, I only give a brief summary of what I find to be most probable with regard to the quarries. (For a broader discussion of these aspects, see Baug 2013).

There is no written information specifically concerning the medieval extraction in Hyllestad and Ølve/Hatlestrand, but a few more recent documents exist, all of them indicating that the quarries not were considered a part of the commons, but rather regarded as private properties (NRJ IV, 474; *Placat og Jordebog…* 1744; *Specification ofer Halsnøe-Klosters Goved-Gaard*…1757; Rønneseth 1977, 9). No maps, written sources or old traditions indicate that the quarries were located within the commons or that quarrying was regarded as a common right. Thus, it seems likely that even though the quarries mentioned are located in the outfields at some distance from the habitation areas of the farms, they were not considered to be part of the commons. Instead they seem to have been regarded as part of the farm territories.

This concurs with what seems to recur in most of the medieval documents mentioning quarries in Norway, in which the landowners'

right to the quarries seems to be most striking. This is the case, for instance, for the quern and millstone quarries in Setså in the county of Nordland and Vågå in the county of Oppland (cf. AB 152, 154, 181; DN I, 630, 760; DN VIII, 428; DN XI, 131, 144). Medieval and early Modern documentary evidence of quarrying indicates that many of the quarries were privately owned, to a large degree belonging to external owners, magnates outside of the local community. The right of production in the quarries seems to have been leased out; thus, medieval landowners were not directly involved in the production but benefited from land rent and fees. According to judgements from the 1600s, commoners, from either the local area or those distant from the quarries, had the right to extract stones at the quarries at Tolstad in Vågå against a fee paid in finished quernstones to the landowners. In the sixteenth century every fourth stone had to be paid, and in the seventeenth century every third stone was charged by the owner of the quarry of which every tenth stone had to be given to the King by the owner (Kleiven 1944, 347, 390–391; Teigum 2001, 268; 2011, 52–53), indicating royal sovereignty with special rights to the stones.

A common right to extraction is also noted in connection with the millstone quarries in Selbu in Sør-Trøndelag in the seventeenth century, where all inhabitants from the Selbu district had the right to exploit the minerals in the mountain and to establish quarries and extract millstones (Helland 1892, 5; Rollseth 1947). This latter case may be due to the rather remote location of the quarries. The production sites in Selbu were mainly situated in the high mountains, *c*. 10–20 kilometres, from the central parts of the farms (Rollseth 1947, 20).

Most evidence therefore points towards a situation where the quarries were regarded as private property and not as a part of the commons in the two areas studied. Most likely, the landowners also had disposal of the quarries. Consequently, the property structure within the two quarry landscapes will be of importance, and it is within such a framework that I intend to look at the quarries in Hyllestad and Ølve/Hatlestrand.

Property structure connected to the quarry landscapes

According to the documentary evidence from the late twelfth century onwards, ecclesiastical owners, monasteries, bishops and local priests and churches had properties within the two quarry landscapes, and the majority of the farms in Hyllestad and Ølve/Hatlestrand were parts of larger ecclesiastical estates in the Middle Ages. Medieval sources from the thirteenth century onwards confirm that this property structure has roots that extend back into the early Middle Ages, at least to the twelfth century. Whether and how these institutions were involved in the quarrying requires discussion. It would also to be of value to discern the property patterns in the quarry area that date to before the Middle Ages, and to discuss organisation and the possible actors involved in quarrying before the ecclesiastical institutions gained control of the areas.

Hyllestad

In my earlier studies of the quarries in Hyllestad, I have shown that all the farms where the quarries are located were parts of larger medieval ecclesiastical estates. The farms belonged to the local churches of Øn and Hyllestad, Munkeliv monastery and the Bishop in Bergen, and possibly also Nonneseter monastery in Bergen (Baug 2002 [2001], 90–97; Baug 2013, 257–272). Neither before nor after the Reformation were farms with quarries within their boundaries owned by freeholders (Figures 14.4 and 14.5). I would thus suggest a situation where the ecclesiastical landowners in Hyllestad also had disposal of quarries located at the different farms. And if this is the case, production based on tenancy in the Middle Ages seems plausible.

As the quarries in Hyllestad seem to date to the early Viking period, there was activity before the ecclesiastical institutions gained interest in the areas from the twelfth century onwards. Is it possible then to discern the property patterns in the quarry area earlier than the Middle Ages? Who donated or sold the farms to the ecclesiastical institutions?

In Hyllestad, the geographical distribution of farms with different ownership in the Middle Ages indicates a somewhat dispersed ownership structure, where even different institutions owned shares in the same farm. This split ownership may indicate small transactions, like gifts, sales and so on. However, it is more likely that ownership by ecclesiastical institutions should be looked upon as being in

connection with one another, as the properties of priests, the Bishop and Munkeliv monastery may stem from a common source (Baug 2002, 97; Baug 2013, 261–265). Yet, in some areas, indications of prehistoric estates can be seen, and it is possible that the estate structure dates further back, and that local chieftains or magnates owned land within the quarry area prior to the presence of ecclesiastical institutions.

The possibility that, for a time, the quarries were operated by monasteries, the church and private landlords through a royal privilege policy should perhaps also be considered. It is a possibility that the King may have confiscated estates during the transition to the Middle Ages, and that he was the donator to these different institutions. Written sources do in fact indicate a royal donation to Munkeliv monastery in both Hyllestad and Hatlestrand (DN XII, 257). However, if all the farms/estates formerly belonged to the King, it is perhaps more likely that he would have donated the farms to the monastery or the Bishop, rather than to local priests. Consequently, there may be reasons to look also for other owners in the Viking period and during the transition to the Middle Ages.

Medieval farms with quarries	Institution	Ownership after the Reformation
Myklebust (No. 79)*	Munkeliv monastery	Munkeliv monastery
Hyllestad (No. 77)	The local priest of Hyllestad	The local priest of Askvoll (*mensalgods* = estates belonging to the priest)
Sæsol (No. 78)	The local priest of Hyllestad	The local priest of Askvoll (*mensalgods*)
Sørefjorden (No. 72)	Munkeliv monastery	Munkeliv monastery
Berge (No. 70)	Munkeliv monastery	Munkeliv monastery
Rønset (No. 71)	Possible Noble estate or Nonnester monastery-estate	Vincent Lunge from 1535
Skor (No. 23)	Uncertain	The local church of Øn and the church of Holmedal
Hatlem (Nos. 25, 26 and 27)	1 *månadsmatbol* belonged to the local priest of Øn	*Stiktgods*, former Bishop-estate
Øn (No. 29)	Bishop-estate	*Stiktgods*, former Bishop-estate
Sørbø (No. 32)	The local priest of Øn and the Bishop	Separated from the farm Ulvik in the 16th century. Stiktgods, former Bishop-estate
Gil (Nos. 33 and 34)	Munkeliv monastery	Inner Gil: *Stiktgods*, former Bishop-estate. Outer Gil: Munkeliv monastery
Rutle (No. 10)	The local priest of Øn, the local church of Øn and from 1427 5 *månadsmatar* and 4 *teigar* belonged to Munkeliv monastery	Munkeliv estate, but 4 *teigar* belonged to the local church of Øn
Eide (No. 35)	Munkeliv monastery	Munkeliv monastery
Åsmul (No. 36)	The local priest of Øn bought a part of the farm for the local church of Øn	The local church of Øn
Borsholmen (No. 37)	The local priest of Øn	The local priest of Askvoll

*No. refers to the land number/farm id in the Norwegian land register.

Figure 14.4: Medieval ownership structure in the quarry landscape in Hyllestad.

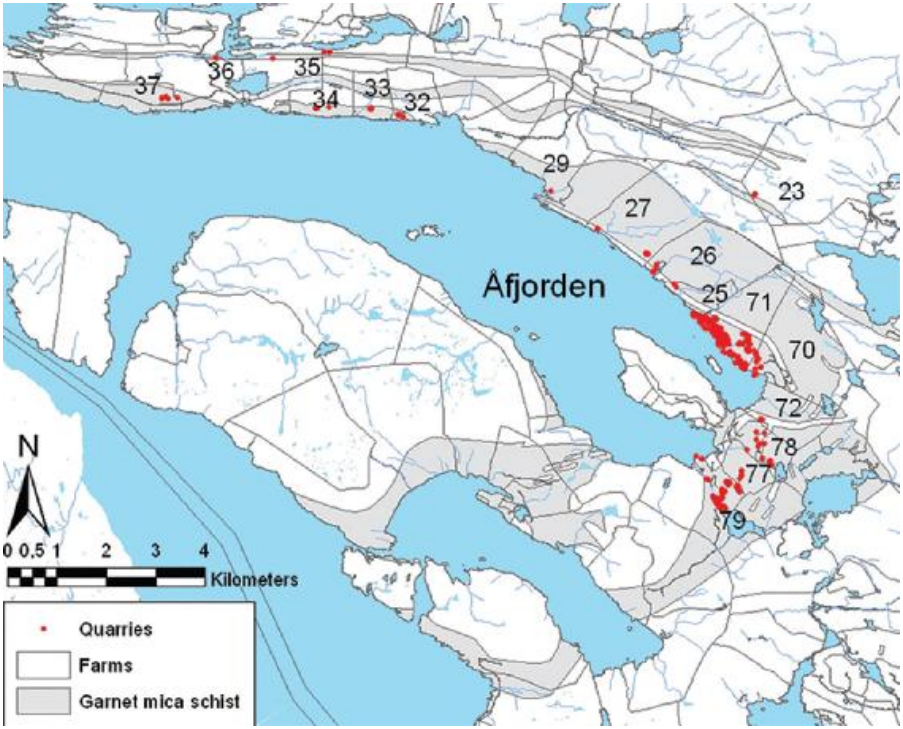

Figure 14.5: Identified quarries in Hyllestad. Farm numbers are specified for the farms with quarries within their boundaries (Baug 2013, fig. 1.6) (Norge Digitalt. FKB-data, 1413 Hyllestad kommune, 32_1413eiendom_flate, 28.02.2009. The map is based on aggregation of the single sub-plots land properties in 32_1413eiendom_flate (polygon) to the cadastral units (named farm) by the dissolve-function in ArcGIS by A. Solli, AHKR, UiB. The map-data for the quarries and the mica schist in Hyllestad derive from a registration carried out by T. Heldal, NGU).

In order to investigate this, a combination of archaeological sources – mainly Iron Age burial mounds, with medieval or early modern written evidence like land registers, tax lists and the like – has proven to be useful. The Land Law enacted by King Magnus the Lawmender in 1274 refers to burial mounds as symbolic expressions of an allodial privilege to ancestral farms (L VII, 16; Taranger 1915, 107), implying that only people with such rights were allowed to demonstrate this through burial mounds. This is supported through several studies where the distribution and spatial pattern of burial mounds are seen as indicators of land rights (cf. Zachrisson 1994; Skre 1997, 1998; Iversen 1999 [1997]). Frode Iversen's study (1999) in the counties of Sogn og Fjordane and Hordaland demonstrates a strong correlation between the distribution of burial mounds from the late Iron Age and historically recorded farms owned by freeholders in the Middle Ages and early modern period, as well as a general lack of burial mounds on medieval tenant farms. The study points towards a situation where the mounds from the late Iron Age should be seen in connection with property rights, and further that the core of an old estate often was surrounded by farms without burial mounds, indicating a subordinate status. An analysis of burials and property rights can in this way indicate the extent of estates that probably originate from the late Iron Age.

In the parishes of Øn and Hyllestad, burials and burial mounds from the Iron Age have been identified at 11 out of 48 farms (Fett 1954; Fasteland 1983), constituting about 23 per cent of the total number of farms within the two parishes. Only at five of the farms (*c.* 10%), the burials have been dated to the late Iron Age through archaeological material. This is the case for the farms of Øn (no. 29), Sørefjorden (no. 72) and possibly also Rønset (no. 71) within the quarry area (Fett 1954; Fasteland 1983). One farm has a burial from the early Iron Age, but the vast majority of the burials remain undated (Figure 14.6).

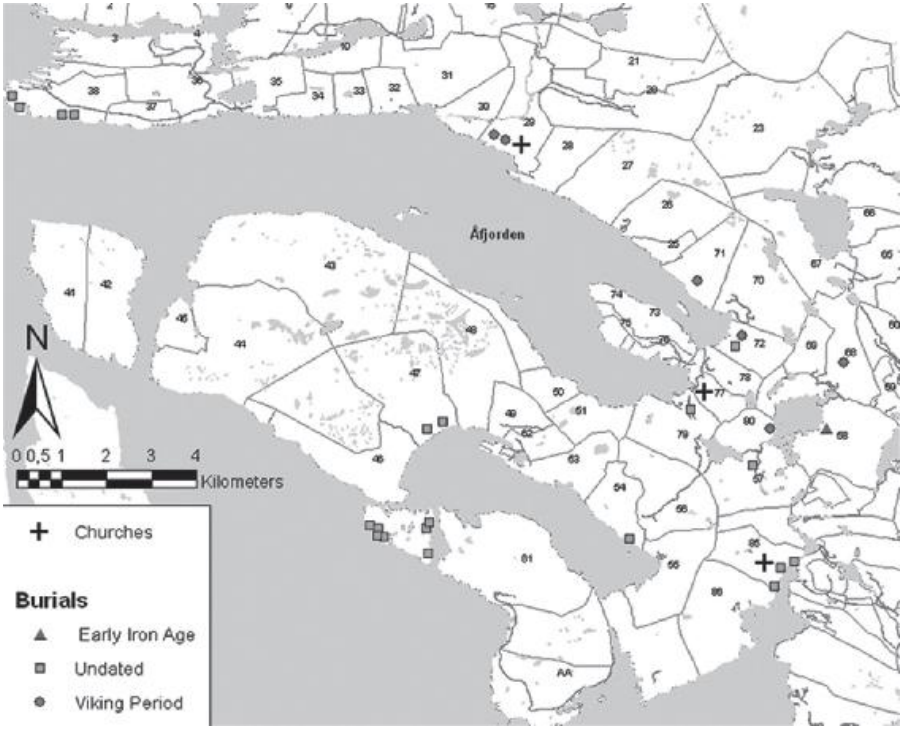

Figure 14.6: Map with all identified burials and the medieval churches in the parishes of Øn, Hyllestad and Bø (Based on Fett 1954; Fasteland 1983 and https://askeladden.ra.no). As exact co-ordinates for many of the structures are lacking, the symbols give only an approximate location within the farms (Map based on Baug 2013, fig. 8.4) (Norge Digitalt. FKB-data, 1413 Hyllestad kommune, 32_1413eiendom_flate, 28.02.2009. The map is based on aggregation of the single sub-plots land properties in 32_1413eiendom_flate (polygon) to the cadastral units (named farm) by the dissolve-function in ArcGIS by A. Solli, AHKR, UiB).

Two medieval churches were built in Hyllestad, one at the farm of Øn (no. 29), the other at the farm of Hyllestad (no. 77). At Øn, on the northern side of the Åfjorden fjord, there are also two burial mounds from the late Iron Age. The surrounding farms have no visible graves or stray finds. The neighbouring farm Hatlem (nos. 25–27) paid land rent to the priest at Øn in the Middle Ages (BK 29), while the farm at Salbu (no. 30) bordering Øn to the west was owned by the church of Øn (BK 29), indicating that these farms were subject to Øn at an early stage. This may possibly signal that Øn made up the core settlement of an estate from the Viking period.

In the early Middle Ages, it was common that local chieftains or rich farmers played an active role as church builders (G 12; Ingvaldsen 1996; Buckholm 1998 [1997]; Brattekværne 2006), which could also be the case here (Baug 2002, 99; 2013, 266–268). Consequently, the possibility that local magnates had disposal of the quarries in this area during the Viking Age should be considered.

On the eastern side of the fjord Åfjorden, farm ownership might have had a different character. More farms with burial mounds are identified here, three of them from the late Iron Age (Fett 1954, 9; Dommasnes 1976, 182) (cf. Figure 14.6), indicating that the farmers themselves had property rights over land and quarries. Three of the farms have burials dated to the late Iron Age, located at Akse (no. 68), Kleive (no. 80) and Sørefjorden (no. 72), and all were male weapon graves (Baug 2013, 32). The burials at Kleive and Sørefjorden contained a sword and an axe each, signifying free and land owning farmers, according to the archaeologist Bergljot Solberg (1985, 74). The burial find at Akse was richer and contained two swords, two sparrows and one axe, indicating a man belonging to the uppermost aristocratic level of society (Solberg 1985, 74). In this area, therefore, freeholders may have initiated the quarrying.

Ølve and Hatlestrand

In Ølve/Hatlestrand also, several of the farms with quarries within their boundaries were owned by different ecclesiastical institutions from the middle of the twelfth century onwards. Compared with Hyllestad, Ølve/Hatlestrand have a more divided property structure, and no institutions distinguish themselves as major owners within the quarry area (Figures 14.7 and 14.8) (Baug 2013, 278–285).

After the Reformation most farms in Kvinnherad belonged to the aristocracy (Skattematrikkelen 1647 XI), and this noble estate can be described as a property cluster. The estate seems, however, to stem from several smaller properties belonging to different aristocratic families, the King and freeholds, and the noble property cluster documented in 1647 does not date back to the late Iron Age, not even to the Middle Ages. During the Middle Ages, different ecclesiastical institutions had properties in Ølve/Hatlestrand, but the King and a secular aristocracy also seem to have owned land. The area with the most intensive bakestone production seems to have belonged to among others Halsnøy monastery. The ownership structure is, however, somewhat blurred. Most farms with quarries within their boundaries seem, however, to have been farmed by tenants. This may indicate that the bakestone production also was based on tenancy during the Middle Ages.

Medieval farms with quarries	Institution	Ownership after the Reformation
Ølve:		
Berge (No. 7)*	The King?	Freehold
Presthus (No. 5)	?	The local priest of Kvinnherad
Fugleberg (No. 17)	Halsnøy monastery	Shares were divided between freehold, Vincent Lunge and Halsnøy Monastery
Upper Tufta (No. 16)	Halsnøy monastery	Halsnøy Monastery
Lower Tufta (No. 15)	?	The local church of Ølve
Hatlestrand:		
Teigen (No. 26)	Belonged to the farm Skåla (no 82) which may have belonged to the King	The farm Skåla, Kvinnherad
Ask (No. 27)	The local church of Kvinnherad?	The local church of Kvinnherad
Nettland (No. 29)	Olav Engelbregtson's estate	The Crown during the 16th and 17th centuries
Hjortland (No. 30)	Secular aristocracy	Lyse monastery – which was under the Crown, and the Cathedral of Bergen
Eikeland (No. 33)	Secular aristocracy, Munkeliv monastery and the Bishop of Bergen	Lyse monastery – which was under the Crown, and secular aristocracy

*No. refers to the land number/farm id in the Norwegian land register.

Figure 14.7: Ownership structure in the quarry landscape in Ølve and Hatlestrand.

As stated above, the quarries in Ølve/Hatlestrand seem to date to the early Middle Ages, meaning that here also there was activity before the ecclesiastical institutions gained interest in the areas from the twelfth century onwards. Is it possible, then, to discern property patterns earlier than the Middle Ages, and in this way look into which groups of actors initiated quarrying in the area? I would suggest that those who owned the land where the quarrying first started may have been the ones who initiated the production in the first phase.

In the parishes of Ølve and Hatlestrand, 13 out of 43 farms have burial mounds (Fett 1956), constituting about 30 per cent of the farms, and compared with Hyllestad more burials are located here. Four of the farms with burials – Presthus (no. 5), Ask (no. 27), Netteland (no. 29) and Eikeland (no. 33) – are located within the quarry area. Only one of these burials has been dated to the late Iron Age, a mound located at Netteland (no. 29) (Fett, P. 1956; Fett, E. 1972, 122); the others remain undated within the quarry area (Figure 14.9).

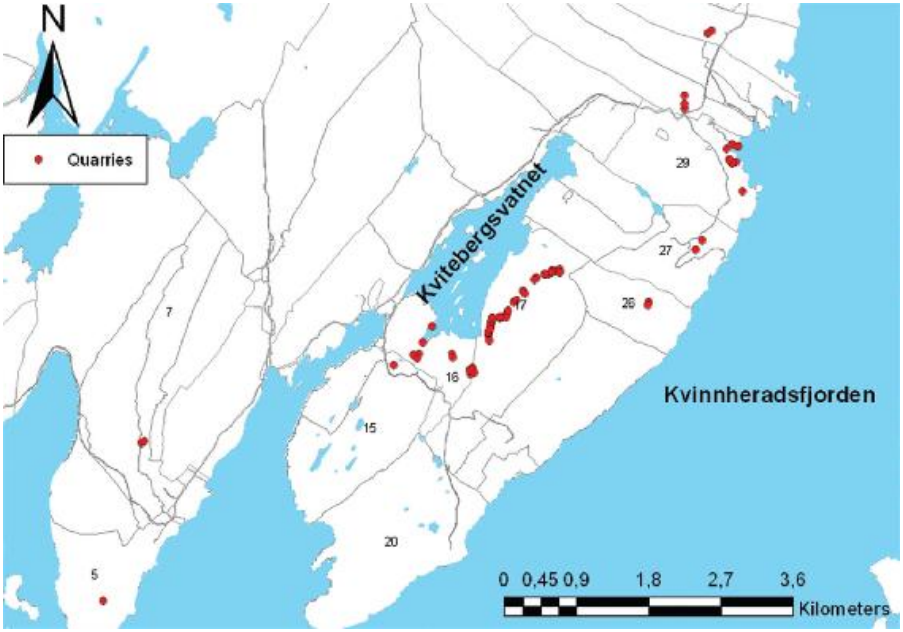

Figure 14.8: Identified quarries in Ølve and Hatlestrand. Farm numbers are specified for the farms with quarries within their boundaries (Map based on Baug 2013, fig. 1.7) (Norge Digitalt FKB-data, 1224 Kvinnherad commune, 32_1224eiendom_flate 21.11.2007. The map is based on aggregation of the single sub-plots land properties in 32_1224eiendom_flate (polygon) to the cadastral units (named farm) by the dissolve-function in ArcGIS by A. Solli, AHKR, UiB. The location of the quarries may have a few metres of inaccuracy).

Ølve and Hatlestrand are located within the borders of Kvinnherad *skipreide*, and within this area studies of burials and property structures have been conducted (Iversen 1999; Hatleskog 1997), which may help to see the quarry area in a larger societal and socio-political context. A *skipreide* was an administrative-military unit attached to the naval fleet (Norw. *leidang*), and which most likely dates back to the Viking period (Helle 2001, 35). Around 190 possible graves from the Iron Age have been identified in Kvinnherad (Fett 1956) and *c*. 40 of these can be dated to the late Iron Age and 37 to the early Iron Age. The burials are located at 42 out of 87 possible medieval farms (about 48 per cent). According to Iversen, there is no "empty area" with regard to burials and archaeological finds (Iversen 1999, 33–35), as in Hyllestad. This indicates a different ownership structure in Ølve/Hatlestrand as compared with Hyllestad. In Ølve and Hatlestrand a larger degree of freeholds should be considered. Most evidence thus point towards a situation where local farmers may have been the ones who initiated the quarrying in the first stage in Ølve/Hatlestrand, and who disposed over the production area in the early Middle Ages.

Figure 14.9: Map with all identified burials in Ølve and Hatlestrand (Source, P. Fett 1956; E. Fett 1972; Iversen 1999, 34 and https://askeladden.ra.no). As exact co-ordinates for many of the structures are lacking, the symbols give only an approximate location within the farms (Map based on Baug 2013, fig. 8.6) (Norge Digitalt FKB-data, 1224 Kvinnherad commune, 32_1224eiendom_flate 21.11.2007. The map is based on aggregation of the single sub-plots land properties in 32_1224eiendom_flate (polygon) to

the cadastral units (named farm) by the dissolve-function in ArcGIS by A. Solli, AHKR, UiB).

Organisation of the activity in the quarry areas

Both the character of the production and the scale of the distribution of products indicate an intense and well organised activity in the two quarry areas. The quarries show a specialised production where the purpose was exchange and trade, and the distribution of the different products within large parts of the Nordic countries indicates the existence of strong trading networks, which for Hyllestad can be dated to the Viking period. Did ownership of land involve more than the right to collect rent, produce and profits from the people who ran the farm? The long time-span of the two quarry areas studied, with changes in ownership structure and disposal, makes it possible that the organisation and administration of the quarrying also changed.

In the Viking period control over land also seems to have included control over people. A system of personal dependency between landlords and tenants may have existed (Iversen 1995, 171–174; Øye 2004, 87). In such a situation the landowners may have been more or less directly involved in the quarrying, and there may have been direct contact between landowner and tenant. It is reasonable to suppose that the landowners, both magnates and freeholders, may have initiated the production in the first phase, and at a later stage made sure that the activity was being maintained, and perhaps also provided a workforce.

It is possible that the quarries in the Viking period and the early Middle Ages were part of the *veitsle* institution, where tributes and duties were paid in kind and services, which was a well-established part of the ambulant kingdom in the late Iron Age and early Middle Ages (Bjørkvik 1975, 632; Iversen 2008 [2004], 35). This system of yield and income from landed estates constituted the economic base for the King up until the beginning of the thirteenth century (Bjørkvik 1964, 424–425). As the King in the early Middle Ages donated land to ecclesiastical institutions (Bjørkvik 1964, 425), yields may have continued to constitute an important economic income for the new landowners. It is thus a possibility that the quarries may have been an element of a system where quernstones and bakestones were produced as tribute to the landowners.

In the high Middle Ages the rights concerning landed property are defined in a more impersonal way than before. From the twelfth

century onwards, tenancy was based on fixed economic relations, where personal contributions were replaced with land rent based on size and production (Øye 2002, 267). Aspects like property, disposal and tenancy had become economic rights not involving personal dependency (Iversen 1995, 171–174; Skre 1998, 35–36; Øye 2004, 87). This makes it likely that we should look for changes with regard to the organisation of the quarrying from the late Iron Age into the high Middle Ages.

As most, if not all, farms located within the two quarry areas belonged to different estates, both in the Middle Ages as well as after the Reformation, they must have been farmed by tenants. This may indicate a situation where the quarrying was also based on tenancy, and where the actors with disposal of the quarries belonged to the elite, here, to a large degree represented by different ecclesiastical institutions. Nevertheless, the possibility that the landowners engaged more specialised stonecutters should perhaps also be considered, even though there is no written evidence to indicate such a situation in Norway.

From the twelfth century onwards, the different quarried products may have been part of the land rent that the tenants who ran the farm had to pay to the landowners. Such an arrangement is indicated in a document from the seventeenth century from Ølve, where the land rent from Sunnhordland was paid in different commodities, like bakestones among other things (Bjørkvik 1995, 156–157). It is possible that the tenants living and working at the farms over the centuries organised the quarrying and maybe also the distribution of the products, perhaps in co-operation with tenants from several of the farms, as a common *félag*, where they received profit after how much they contributed. Production may in this way have been organised and carried out by others, such as tenants. In such a situation, the tenants most likely were obliged to deliver a certain amount of the products to the landowners, who to a large degree were represented by ecclesiastical institutions. In this way the landowners were never directly involved in the production of the stone products themselves, even though they obviously had a great interest in it as well income deriving from it.

Parallels to such a system can be found in other countries. In Germany, medieval documentary sources are better represented than

in Norway (see Pohl, this volume). Documents indicate that from the thirteenth century onwards the monastery in Mendig in Eifel owned several quarries – also for quernstone production – that were leased out. Here, the stonecutters who ran the quarries were obliged to deliver a certain amount of the products to the monastery, an amount that seems to have varied. The documents also show that the monastery played the role as entrepreneur, starting up quarries that were leased out even before quarrying began. The abbey was normally not directly involved in the work at the quarries, but acted as organiser and owner who stated the premises for the activity. In a few cases, however, stonecutters also seem to have been taken into the monastery as lay brothers (Pohl 2012, 77–78; this volume). Maria Laach monastery belonged to the Benedictines, the same order as at Munkeliv monastery which had properties in Hyllestad. This may not mean that the two monasteries necessarily organised and administered the quarries in a similar way, but this should perhaps be considered. Production and distribution on monastic estates may have been organised and carried out by others, most likely by tenants from the farms where the quarries were located. The monasteries would most likely receive a certain amount of the produce as land rent.

Such a situation was common within medieval manorial systems, where the landlord normally handed over to the tenant nearly all the resources at the farm. However, differences with regard to the type of resources can be seen, as the landlords often kept control of those resources not vital for normal farming activities like hunting, fishing and the production of timber. The tenants' use of these resources at a farm was normally limited to what was needed for normal agricultural production (Myking 2005, 18–19). Thus, the tenants normally had the full right to use the infield but a restricted right to use the outfield, where exploitation was restricted to their own use and not that of profit (Øye 2002, 362–368; 2005, 10–11). Such a situation may also have existed in Hyllestad and Ølve/Hatlestrand. If this was the case, the large-scale quarrying may have been organised in a different way than the agricultural activities at the farms. A larger degree of control and involvement from the landowners' side with regard to the quarrying compared with more typical farming activities may have existed.

The stonecutters

An important premise for the extensive exploitation in Hyllestad and Ølve/Hatlestrand was access to an adequate workforce. To make it possible to remove persons from food production and put them into the quarries, an agricultural surplus was needed in order to keep workers fed. However, most workers may not have worked full time as stonecutters, and their work in the quarries may have been conducted along with other tasks they had to perform at the farms on which they worked and lived. Quarrying may thus not necessarily have been conducted all year round, and was perhaps more intensive during the wintertime when there was less agricultural work to do at the farms. It is reasonable to assume that tenants or semi-free labourers and hired workers, or even slaves in the earliest period, were engaged in quarrying in both Ølve/Hatlestrand and Hyllestad. The possibility that not only the tenants living at the farms with quarries but that other commoners, perhaps even those from other areas, also acted as stonecutters is highly relevant. Such a system is, as noted, indicated in recorded evidence from the early modern period in connection with other quarries. The extraction of different products needed know-how of rock type and carving techniques, but these skills may not have been so complicated that most people could not learn to apply them. Experiments by carving quernstones and stone crosses in Hyllestad indicate that no highly skilled specialists were needed to conduct all aspects of this work. School children at the age of 13 have proven to be able to carve both quernstones and stone crosses, just by following some simple instructions and guidelines (Baug 2013, 200). Consequently, workers with diverse backgrounds and positions, like children and adults, farmers, tenants and slaves, may have been engaged in the quarrying. A similar situation is known from quernstone quarries in Sweden during the nineteenth century, where women and children had to participate in the work by removing production waste and water from the quarry sites (Hange-Persson 1982, 12).

A certain organisation and hierarchy or specialisation of workers, including more skilled stonecutters and assistants, may have existed. Different persons may have been responsible for different levels in the quarrying operations, where the most skilled stonecutters were in charge of the extraction of more complicated and special products,

such as crosses. The skills of some workers may also have been acknowledged and thus they gained a certain status (Baug 2002, 102, 104). Such a division of labour is, for instance, known from quarries producing building stones in the Middle Ages (cf. Salzman 1967, 119–127; Gardelin 2006, 42). It is suggested that the inspiration to hew stone crosses came from the British Isles (Birkeli 1973), and crosses with so-called Celtic and Anglican forms were extracted in Hyllestad. Also the tradition to hew and use building stones was introduced to Norway from abroad (Ekroll 1997). It is thus possible that actors who controlled the quarrying may have used foreign stonecutters, at least at an early stage, and maybe in the form of attached specialists. So far, building stones from the quarries in Ølve/Hatlestrand have only been identified in Onarheim church in Tysnes, Hordaland county. The erection of the church most likely started in the latter half of the 1100s (Hoff and Lidén 2000, 267–268), indicating extraction of building stones in Ølve/Hatlestrand in the early Middle Ages (Baug 2013, 327). The farm of Onarheim belonged to the societal elite in the Middle Ages, and was settled by magnates with a close connection to the King (Håkon Håkonssons saga, chapter 23 and 87). The church was most likely built as a private church, linking products from Ølve/Hatlestrand to the societal elite in the Middle Ages (Baug 2013, 327). The production of objects like crosses and building stones may thus have had a different character compared with the serial production of quernstones, millstones and bakestones. Serial production presupposes a considerable number of customers and is usually aimed at a market (Skre 2007, 450), while the extraction of crosses and building stones may have been conducted after ordering from special receivers.

Distribution and trade

As mentioned, both studied quarry sites bear witness to a large-scale production of a quasi-industrial character where the aim was trade and exchange. The quarries were exploited for profit.

Quern and millstones from Hyllestad have been recorded all over the territory of medieval Denmark. However, the stones seem to be concentrated in the north-eastern parts of the country, including Northern Jutland, Funen, Zealand and especially the area towards the Baltic Sea, with large quantities found in Scania and Bornholm (cf. Carelli and Kresten 1997; Sindbæk 2005, 148–150; Baug 2013, 227–

232). The stones have been dated according to the cultural layers where they were found. It has been suggested that the concentration of Hyllestad stones in a specific region was determined by technical transport considerations, especially at an early stage. But as the Swedish researchers Carelli and Kresten point out, one should note that the eastern line of the Hyllestad region reflects the political border between the Danish and Swedish Kingdoms in the Middle Ages, and the possibility that these kingdoms worked as separate regions as for trade should be considered (Carelli and Kresten 1997, 126). In south-western Denmark, the stones from Hyllestad met an area dominated by quernstones of basalt from the Rhine area in Germany (Carelli and Kresten 1997, 123–125; Sindbæk 2005, 148–150; Baug 2013, 308). Thus, the distribution of quernstones from Hyllestad seems to have been organised within defined routes from the latter half of the Viking Age, routes that were maintained throughout the Middle Ages (Baug 2013, 312). Most evidence thus indicates that the quernstones from Hyllestad were part of a highly organised activity, conducted within strong and stable trading networks that lasted for centuries. Location of quernstones to towns and market places implies that the stones were sent not directly from the quarry to the end-user, but via Viking Age emporia and medieval towns. The bakestones, on the other hand, are mainly found within the Norwegian cultural sphere, including the North Atlantic Islands; Shetland, Iceland and the Faroe Islands, whereas they are rarely found in Denmark and Sweden (Baug 2013, 235–238).

The landowners need not have been central agents in the trade, but they would most likely have ensured that their surplus production was taken to market (Skre 2008, 353). The large-scale distribution of quernstones from Hyllestad started in the latter half of the Viking period, and the amount of finds in Sweden and Denmark indicates organised trade at this early time (Carelli and Kresten 1997; Baug 2013, 309–312). Commercial interests prompted a certain form of security; trading advantages needed to be secured, and the trading routes and markets protected. This could be achieved through formal trading alliances between the different areas, as well as by political alliances. The wide-ranging distribution of quern and millstones may thus not have been possible without the involvement at some level of a societal elite.

From the eleventh century and into the high Middle Ages (*c*. 1150–1350), urbanisation with permanent towns took place in Norway, where the towns acted as staples and centres for the transaction of different commodities (Helle 2006, 24). This development most likely effected the distribution of the quern and millstones, but also the bakestones that now constituted a new product.

During the Middle Ages it seems to have been common that landowners belonging to the societal elite, both ecclesiastical and secular, were involved in the distribution and trade of goods received as land rent. The landowners had their land rent products brought into the towns where they were sold further on (Helle 1982, 330–337, 346, 354). Both magnates and ecclesiastical institutions were to a certain degree directly involved in foreign trade with their own ships and commodities. In some cases they also rented their ships to others (Helle 1982, 398, 402). In a charter issued by King Håkon Håkonsson dated to 1217–1219, Halsnøy monastery should have the same rights as canons in Bergen diocese to send their land rent commodities to Iceland for sale (RN I, 430). This may also have included products from the bakestone quarries belonging to the monastery (cf. Figure 14.7). An interesting aspect here is that Iceland, Shetland and the Faroe Islands are the only countries where bakestones, most likely from Norway, have been found in somewhat large quantities.

Various ways of organising the trade with bakestones and quern and millstones may have existed. A common situation from the 1250s into the 1300s was to use deputies, such as servants travelling on board their institution's or master's ship, but quite often ship and crew and independent traders were hired. This could be organised as a so-called *hjáfélag* where one party handed over commodities to a second party without following the ship. The profit was divided between the two parties. By partnership in a common *félag*, all involved actors placed parts of the commodities into ships and transport, and received profit after contribution. In some situations one participant owned the ship and the other the commodities. Written evidence also attests traders who acted as distributors and who transported and sold someone else's commodities without being influenced by loss or profit from the transactions of this goods. The merchant would at the same time sell his own commodities (Helle 1982, 370, 372). Such co-operation may also have made it possible for tenants and others

working in the quarries to be also involved in the distribution of the products. Co-operation in ship and transport made it easier for the workers to transport their products to marketplaces and towns.

At the same time, the quarries were production places for more special and exclusive objects, like stone crosses, grave slabs and building stones, that never reached the market places or towns as commodities meant for the average population. These products were subjected to different forms of transaction. They must have been commissioned products, in all likelihood ordered by actors belonging to the upper strata of society, both persons and institutions. Buildings may have been planned in detail before quarrying, and measurements and patterns needed may to a large degree have been sent to the quarry before production, a situation known from medieval quarries in England (Salzman 1967, 123). Both building stones and crosses were in all likelihood transported directly to the receivers who ordered them.

Concluding remarks

Most evidence points towards a situation where the landowners controlled the quarries and the production in Hyllestad and Ølve/ Hatlestrand, although the possibility cannot be fully excluded that some quarries may have been part of commons. During the long time span of the production areas studied, ownership structures, disposal and organisation of the activities changed, and so did the actors that were involved. The lack of recorded evidence with regard to production and distribution, however, makes it difficult to identify the actors, and they can only be indicated at the level of social groups.

During the earliest phase, both production areas to a large degree seem to have been controlled by several local magnates and to a certain degree also by freeholders. These actors may also have been the ones who initiated the activities, and a more direct involvement of the landowners in this first phase compared with later periods should perhaps be considered. At a later stage, these landowners donated land and quarries to different ecclesiastical institutions, locally and externally, as well as to the King. The quarries became part of larger estates, largely owned by the ecclesiastical and political elite, where the production most likely was based on tenancy. From the twelfth century onwards the manorial systems were generally based on just

and economic rights, and a situation where the landowners only were indirectly involved in the production should be considered. This was the common situation with regard to agricultural activities, and a similar situation regarding the quarries should perhaps be expected, where the land rent was paid in the form of quernstones, millstones and bakestones, and where the landowners not were directly involved in the activity themselves.

It is possible that the tenants living and working at the farms organised both quarrying and distribution of the products, as a common *félag*. Thus, the landowners need not have been central agents in production and trade. However, they would most likely have ensured that their surplus production was taken to market where the products were sold further on. In some cases, however, the landowners kept the control of resources not vital for normal farming activities. This may also have been the case for the quarries. If this was the situation in Hyllestad and Ølve/Hatlestrand, quarrying was perhaps conducted by tenants or semi-free labourers living at the farms, as well as by hired workers, or even slaves in the earliest period, while the landowners were the organisers and the ones who stated the premises for the production. During the Middle Ages, magnates as well as ecclesiastical institutions were to a certain degree directly involved in foreign trade with their own ships and commodities. This was probably the case with regard to the trade of quern and millstones and bakestones, even though ships and independent traders on some occasions may have been hired. The landowners' control and involvement in production and distribution may thus have varied. However, the large-scale quarrying in the two production areas and the defined trading networks of the products point towards powerful actors behind the activities. The quarrying and the export of the products demanded wider organisation and contact networks, and most likely, the landowners would ensure both production and distribution of the different products.

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Chapter 15

The role of Laach Abbey in the medieval quarrying and stone trade

Meinrad Pohl

The Benedictine Laach Abbey is built on the edge of the Laacher See volcano crater and is thus situated in the heart of the ancient and still existing quarry landscape in the Eastern Eifel, near Koblenz in south-western Germany (Figure 15.1). The abbey was founded in 1093 by the Count Palatine of the Rhine, Heinrich II. von Laach, and it owned numerous quarries in the surrounding region.

Owning quarries was essential for the abbey. It was important not only to own quarries as a source of suitable building stone for the construction and maintenance of the abbey's buildings, but also to possess quarries where quernstones and millstones were made. The economy of the Benedictine Order and thus the economy of the Laach Abbey was deeply rooted in the agricultural sector, making it important to own deposits from which the instruments for the processing of its agricultural products were made. The abbey owned a number of quarries where millstones and building material were produced to meet local and also European demand. But how was the extraction and distribution of these various stone products organised and what role did the abbey play? Was the abbey an integrated quarry-enterprise that commanded the entire value-creation chain from extraction to distribution, or did it leave it partly or completely to others?

This paper sheds light on the role of Laach Abbey in these activities as well as that of other involved actors. First a short

description of the deposits and a brief historical overview of material use and exploitation is given. After depicting the abbey's quarry property within the quarry region, Laach Abbey's role within ownership structures and the organisation of the production using the available written record is discussed. Before coming to the conclusion, the distribution patterns of the stone products are described and a short overview of the consumers of the quarries' stone products is also given.

Figure 15.1: Laach Abbey and the surrounding deposits on the political map. The abbey and the adjacent Laach Lake are marked with a circle. While parts of the deposits of the Krufter Bach belonged to the village Kruft, which was owned entirely by the Laach Abbey, the abbey owned just single quarries near Weibern in the deposit of the Riedener Kessel and in Niedermendig. The light coloured areas mark the deposits. Clockwise from above: a) Tuff of the Brohl Valley, b) Tuff of the Krufter Bach Valley, c) Basalt of Niedermendig, d) Basalt of Mayen, e) Tuff of the Riedener Kessel. (Revised map after Geschichtlicher Atlas der Rheinprovinz, Abt. 3, Lfg. 5, Die Rheinprovinz im Jahre 1789, Übersicht der Staatsgebiete, Bonn, Behrendt 1898; with the rock deposits marked in accordance to Meyer 1998).

The deposits

The Eastern Eifel region between the Mosel and the Rhine in Germany is rich in deposits of volcanic rock, some of which were subject to extraction and even long-distance trade as far back as the Neolithic period.

Eruptions of the Riedener Kessel 490,000–350,000 years ago shaped a vast deposit of tuff near Weibern (Figure 15.1). This tuff, often called 'Godelscheider' after the most important quarries at a location called Godelscheid, was very fine grained and thus made an excellent raw material, not only for ordinary building stones but also for finely dressed stones like tracery or construction elements like sills, jambs, ribs and arch stones for the construction of vaults. Its use as ordinary building material was only of local and possibly regional importance until this deposit was connected to the railway in the early 20th century. But it seems that either construction elements or the raw material for construction elements had been widely traded along the Rhine as far as the Netherlands between the 14th and 16th centuries. The so-called Godelscheider formed its own category of goods in the toll registers. However, from the 17th century onwards it went into oblivion.

The eruption of the Laacher See volcano 11,000 years ago shaped the tuff deposits in the Krufter Bach and Brohl Valleys (Figure 15.1). The Romans started to quarry these deposits for building material which was used along the Rhine, mostly in Cologne, Xanten and Utrecht, from the 1st to 3rd centuries AD. While the Brohl Valley deposit was most probably not used during the Middle Ages, the deposit in the Krufter Bach Valley was again used from the 11th to 13th centuries for building material, and was widely traded. In the 12th century extraction and trade were at their peak. More than 500 churches on the Rhine, in the Netherlands, and along the North Sea coast up to Esbjerg in Denmark were built from the tuff of the Krufter Bach Valley. This use was brought to an abrupt end in the 13th century as the tuff had become more and more expensive owing to the rising number of toll stations on the Rhine. Additionally, it faced competition from much cheaper bricks, which came into use in the 12th century in the stone-poor areas of the north.

The deposits of the valleys of the Krufter Bach and the Brohl were

used again in the Early Modern period. The tuff was then ground to powder and called trass. Adding trass to lime mortar created a hydraulic mortar, which could harden even underwater. This characteristic created a high demand for trass in the Netherlands, where it was used for the building of harbours, locks and, owing to the high water level, for virtually every building foundation. The Romans were already familiar with the use of hydraulic mortar and this knowledge was employed again in the Early Modern period. Whether trass was also used in the Middle Ages is as yet unknown.

The quaternary eruptions of the Bellerberg volcano near Mayen and a hitherto unidentified crater between the Thelenberg and Wingertsberg volcanoes near Niedermendig produced basalt lava flows. Basalt lava is easy to extract and hew and is also comparably light. Owing to its vesicular nature, this fine-grained lava made an excellent raw material for the manufacture of saddle querns, rotary querns and millstones. The lava of the Mayener Bellerberg was quarried for saddle querns from the Neolithic period onwards, and for rotary querns at least from the La Tène period. This deposit has presumably been quarried continuously until the middle of the 20th century. The deposit of Niedermendig, sharing the properties of the Mayen deposit, was quarried at least from the 11th century and also until the middle of the 20th century. The Mayen and Niedermendig querns and millstones met a relatively stable demand and were widely traded throughout the centuries (Figure 15.2). Other stone products just played a minor role until the 19th century, when products such as pavement slabs, cobblestones, rubble and grit became more important than millstones.

Figure 15.2: Stone products of the Eastern Eifel, quern and millstone made of basalt and a building stone made of tuff.

Owners and workers

In this chapter the quarry property of Laach Abbey in the area is outlined and the ownership structures, the organisation of the production and the distribution of the revenues within the quarries in the different deposits are addressed. By comparing Laach Abbey with other monastic and secular owners, and by trying to identify other involved parties, an attempt is made to place Laach Abbey in a local context.

Laach Abbey's property

Laach Abbey owned quarries in the direct vicinity of the Lake Laach, which provided the stones for the building of the abbey. It also owned tuff quarries in the area 'Godelscheid' near Weibern and in the Krufter Bach valley in the village Kruft. Basalt quarries in Niedermendig, where querns and millstones were made, were also part of the abbeys property (Resmini 1995, 75).

When addressing the development of Laach Abbey's role in the quarry region it is important to see how far back it is possible to trace its ownership within the different areas. The quarries in the vicinity of the abbey most probably belonged to the abbey from the outset, since they provided the largest share of the construction material for the abbey's church and there is no other known usage for them. Written sources trace the abbey's property in the quarries in Godelscheid and Kruft at least back to the 14th century and the quarries in Niedermendig at least back to around 1200. It can be assumed that some of the quarries, especially in Kruft and Niedermendig, already belonged to the initial property. For Niedermendig, this is stated in a lease contract from 1532 (Resmini 1995, 430 Nr. 879). This is also very likely in the case of Kruft since the entire village belonged to the abbey.

The written record only provides indirect information on whether the abbey operated the quarries or not. The preserved written sources only indicate that quarries were let. Most of the documents are lease contracts; some certify the exchange of land property.

The quarries of Niedermendig

The 'millstone-quarry-law' of Mayen and Niedermendig

Before describing the ownership structure and organisation of production in the Middle Ages, it is necessary to understand the particular system of how the production was organised and the revenue was distributed in the millstone quarries of Mayen and Niedermendig in the 18th century. This system, often referred to as 'millstone-quarry-law' in the written record, was customary law in Mayen and Niedermendig. Although not certain, it is possible that this system can be traced back to the 12th century. When describing this system it is necessary to use the local terminology because English and even supraregional equivalents are lacking.

Three parties were involved in a lease contract and the production of millstones: the 'Lehnherr', the 'Erbherr' and the 'Layer'. The first party, the 'Lehnherr' (Eng.: feudal lord/landlord) owned the land on the surface, and was normally identical with the second party, the 'Erbherr' (Eng.: heir) who owned the subterranean resource. The third party was the 'Layer' (Eng.: quarryman, derived from local dialect 'Lay' for rock face/quarry), the person who actually operated the millstone quarry and worked in it. These craftsmen, the Layer, were specialists in hewing millstones, but unlike stonemasons they were not organised in guilds. Between them the revenue of the quarry was split up. The Layer did not pay a lease but a certain fraction of his revenue to the Erbherr and the Lehnherr. The Erbherr received normally about one third, while the Lehnherr normally received one eleventh. This custom was fully developed by the 15th century at the latest and was maintained until the end of the 18th century (Schüller 2008, 98). Even though this principle appears clearcut in theory, it could become quite complicated in practice when the 'Lehnher' and 'Erbherr' were not a single person but were instead different people who sometimes had unequal shares and/or whose functions became intertwined (Figure 15.3).

Organisation of production

As mentioned above, written sources show that the quarries in Niedermendig already belonged to the property of the abbey at its foundation. The earliest lease contract for one of the abbey's quarries presumably dates to around 1200. It has survived as an ill-preserved copy from the 16th century (Resmini 1995, 75). It provides important information on ownership and production, showing that Laach Abbey

let a quarry in Niedermendig to five quarry workers for the production of building stones or millstones. For the lease and the admission to their community of prayer (communionem orationum) and a sepulchre in the abbey they were obliged to give every second stone to the abbey.

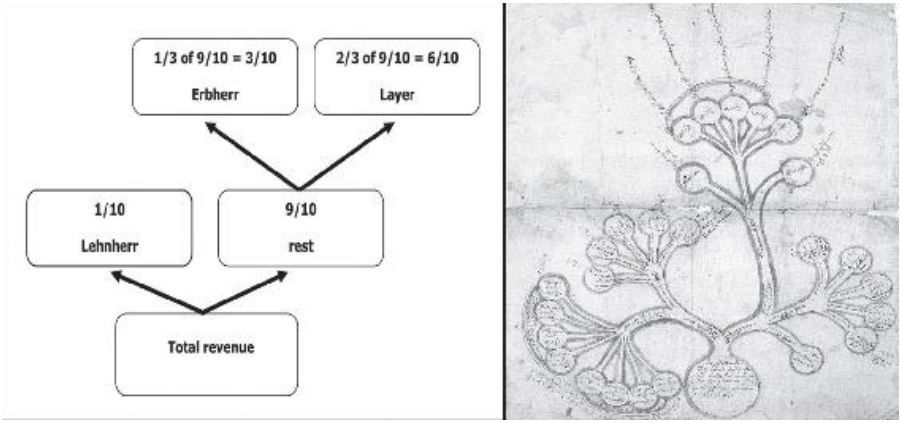

Figure 15.3: The distribution of the revenue from one millstone. Theoretically the revenue was split up as shown in the diagram on the left. Practically, the distribution of the revenues could look as in the picture on the right (Archiv GAV Mayen Nr. 71).

This document, the Niedermendig lease contract, provides much useful information. The wording that they were admitted to the community of prayer and were granted a sepulchre in the monastery might hint that the stone breakers named in this document were joining the Benedictine Order as lay brothers or 'conversi'. These circumstances would also explain the considerable share of the quarry revenue that they had to cede to the abbey. Lay brothers were often specialists in a craft that was needed by the order, and they would then be accepted as members. In this case the lay brothers were millstone breakers who wanted to secure their salvation (Resmini 1995, 75).

This was a common way to organise production on ecclesiastical properties, and contemporary parallels can be found in mining, where the resources also were owned by monasteries. In the coal mines near Liege in Belgium, which were owned by the Cistercian abbey of Val Saint Lambert, and in the ore mines in the Harz Mountains in Germany, owned by the Cistercian abbey of Walkenried, the production was organised in a similar way. Work was organised and conducted by skilled lay brothers, the so-called conversi, who in turn trained and supervised the remaining labour force which was most probably also recruited from other members of the abbey's 'familia', like other lay brothers with a lower status, the so-called 'familiari', or simply the serfs of the surrounding farms and villages (Kranz 2000, 140; Bartels 2001, 62).

The Niedermendig lease contract is also the only document that hints that the quarries were operated by Laach Abbey directly. The precise date of the document remains unknown, but since there are parallels with the organisation of production in other mines of the same era, it fits well into the context of the 13th century. By these parallels and the wording of the document it seems very probable that millstone quarries were operated by the abbey in the 11th to 13th centuries.

The numerous appearances of lease contracts after the 13th century indicate that this kind of organisation of production was followed by the custom of letting the quarries. In this system, the millstone quarries were let to the 'Layer' themselves or to operators who might have functioned as 'Erbherr', who in turn hired the 'Layer'. This development also fits into the general historical context. The

transition from operating mines by the conversi of the abbeys to letting the mines to other operators in the 13th century is also verifiable in the mines of the abbey of Val Saint Lambert (Kranz 2000, 141). The written record after the 13th century includes lease contracts, a land exchange and the granting of passage rights. The lease contracts from 1389, 1459, 1478, 1480 and 1532 all indicate that Laach Abbey did not operate quarries itself but let the quarries to others (Resmini 1995, 260 Nr. 450, 355 Nr. 635, 370 Nr. 727, 376 Nr. 744, 430 Nr. 879). Laach Abbey's role was thereby solely that of landowner, or 'Lehnherr' to use the local term. The lease takers were in part members of the local elite, which makes it improbable that they worked in the quarries themselves. It is more probable that they either employed quarrymen or in turn let the quarries to quarrymen. So a part of the lease takers most probably functioned as 'Erbherr', while others, not belonging to the local elite, may have worked in the quarries themselves. The contract of 1478 explicitly refers to 'millstone-quarry-law' which indicates that the system mentioned above was a generally known customary law.

Concerning the labour force, the Niedermendig lease contract is the only document that directly mentions the labour force of the millstone quarries in Niedermendig. It even names the quarrymen, who joined the Benedictine Order as lay brothers and who worked in the quarries. It is possible that there were more than only one quarry operated by lay brothers of the abbey. It could also be possible that serfs worked in the quarries. However, the direct involvement of the lay brothers is not traceable in the following centuries. Apparently there was a shift in the 13th century from running the quarries with lay brothers to letting them to other operators.

Distribution of revenues

The Niedermendig lease contract also mentions a complicated pattern of the distribution of the revenue. Unfortunately it is impossible to reconstruct the distribution pattern owing to the poor preservation of the document (Resmini 1995, 75 Nr. 51). Still, just the fact that there was a complicated pattern for the distribution of the revenue makes it probable that the mentioned Niedermendig quarry was a millstone quarry and that the production and the distribution of the revenue were organised in the same way as known from the 18th century. This

indicates that this system has its roots as far back as the 12th or 13th century.

Normally the quarries were let for a certain part of their revenue. The records from the 14th to the 16th centuries show that one ninth, tenth or eleventh of the revenue seems to have been the normal rate for leasing a millstone quarry (Resmini 1995, 260 Nr. 450, 355 Nr. 635, 370 Nr. 727, 376 Nr. 744, 430 Nr. 879). At the beginning, Laach Abbey claimed this share of the revenue in the form of stones, but later possibly its monetary equivalent. This was a common system for distributing the revenue from the exploitation of a resource. It derives from the manorial system and was applied when pieces of land were let and the expected revenue was impossible to predict. This kind of lease was called 'terragium' (Kranz 2000, 137). The system was suited for the millstone quarries of Mayen and Niedermendig because the nature of the resource made it impossible to predict the revenue. It was also applied in mining, e.g. in the already mentioned coal mines near Liege owned by the Val Saint Lambert Abbey (Kranz 2000, 137). Also other landowners in Niedermendig made use of this system. When Dünnwald Abbey let a field in Niedermendig in 1344 it obliged the lease taker in cases where it was possible to set up a quarry for millstones or other useful stones to cede half the revenue of the quarry (Resmini 1995, 191 Nr. 297, LHA KO, 128 Nr. 171). Only one case from the 15th century is known in which the abbey leased their quarries for a fixed sum. Here the abbey let a quarry in Niedermendig for the sum of five florins per year (Resmini 1995, 335 Nr. 635).

The quarries of Kruft

Concerning the tuff quarries in Kruft, only two documents are preserved that can provide information about the organisation of the production and the distribution of revenues. The first document, dating from 1321, is an agreement between a married couple and Laach Abbey that ended a conflict about the rights concerning a property in the districts of Kruft and Kretz. Both parties agreed that the couple had the right to have quarries on their ground. From these quarries they received two thirds of the production and revenue while they also had to bear two thirds of the costs. The abbey had to bear the other third of the costs but also received one third of production and revenue (Resmini 1995, 153 Nr. 213). It is not stated in the

contract who worked in the quarries. In 1328 the couple donated their quarries with the name ‘Alfs Coule’ to the abbey, in exchange for a yearly delivery of cereals (Resmini 1995, 161 Nr. 231). In the second document dating from 1465, the abbey let a quarry located in a place called ‘In der Kunden’ in Kruft to Johann Metzen for the amount of nine marks for one year. The name ‘Metzen’ indicates the profession of a stonemason or stone dresser (Resmini 1995, 351 Nr. 671).

The fact that the names of the quarries’ locations were mentioned in the documents makes it possible roughly to locate them. The quarry name ‘Alfs Coule’ was preserved in the fieldname ‘Ahlskaul’, which is still used in the land register. In this area a quarry has been found. The fieldname ‘In der Kunden’ has survived in the street names ‘In der Kond’ and ‘Kondstraße’ in Kruft. The lake between these two streets is the remnant of a modern tuff quarry; whether this modern quarry succeeded the medieval quarry mentioned in the document from 1465 remains unknown. The fact that the locations were described so precisely might be an indicator for more extensive quarrying than indicated in the written sources. The fact that just two contracts are preserved which deal with the stone resource that apparently provided the building material for more than 500 churches in the 12th century might indicate a dramatic decline in quarry activities in Kruft.

As with the Laach Abbey’s millstone-quarries in Niedermendig and the above mentioned Cistercian-owned mines in the Liege area and in the Harz Mountains, it can be assumed that the quarries in Kruft were initially run by Laach Abbey. They were most likely operated by its conversi or run and operated by the abbey’s vassals. Most probably the serfs of the village Kruft, which belonged to the abbey, would have served as a labour force. This could also be an explanation for the lack of documents until the 13th century, whereas the paucity of documents after the 13th century might more likely be due to fact that tuff was replaced by bricks, which caused a general decline in quarry activities.

Quarrying in Kruft thus declined before the change from self-operated quarries to leased quarries could take place on a larger scale. This could explain the small number of lease contracts in Kruft. However, Laach Abbey did not start the medieval quarrying in the valley of the Krufter Bach, since it was founded after the beginning of the period when tuff was used as building material in the Middle

Ages. After this decline, the tuff of the Krufter Bach Valley was still used locally as building material. The remaining quarries were occasionally let, but it cannot be ruled out that they were also operated by the serfs of the abbey. From the 18th century, when tuff was quarried for the manufacture of trass, it is known that the serfs worked in the quarries seasonally.

The quarries of Godelscheid

Laach Abbey's ownership of tuff quarries in the area Godelscheid near Weibern left traces in the written record in the 14th and 15th centuries, including a will and two lease contracts. In his will from 1341, the knight Simon von Kempenich admits that he had owned the abbey's quarries in Godelscheid illegally and gives them back to the abbey, stating that no one shall hinder the abbey from quarrying (Resmini 1995, 182 Nr. 280). These quarries were most likely the 'Hohe Ley' in Godelscheid (Müller-Betz 2007, 75f.). This document does not provide any further information about the organisation of the production but it could be a hint that the abbey operated this quarry itself.

The later lease contracts, dating from 1412 and 1413, clearly state that the abbey's quarries were run by others. In these contracts the abbey lets quarries to individual persons and their journeymen. The 1413 contract was valid for one year but was extended to two (Resmini 1995, 275 Nr. 485, 276 Nr. 488). The fact that the lease takers had journeymen would indicate that they were masters of a certain craft, presumably stonemasons. There is a paragraph in the contract stating that if they made 'voysteine' they should sell them to the abbey but they were not allowed to sell them themselves. Even though the meaning of the term 'voystein' remains undecipherable, it possibly describes some kind of architectural ornament. It is also stated that these stones were commodities. This makes it more probable that the lease takers were stonemasons who were able to produce ashlars and more advanced products and were not simply quarry workers.

While Laach Abbey demanded every tenth stone from the lease taker in the first lease contract from 1412, the contract from 1413 obliged each lease taker to pay the fixed amount of nine mark, when working with a journeyman, five mark when without (Resmini 1995,

275 Nr. 485, 276, Nr. 488). The fact that the lease takers of the quarries in Weibern had journeymen and the fact that they had to pay a fixed amount suggests that their profession was different from the quarrymen who worked in the millstone quarries of Niedermendig. Both facts also suggest a different kind of production organisation.

Laach Abbey's role in the quarries of Niedermendig, Kruft and Godelscheid

To sum up the observations concerning Laach Abbey's involvement in its quarries in Niedermendig, Kruft and Godelscheid, common aspects become evident, even though there were differences in material and material use. The way the production was organised and how the organisation of production developed over time fits into a general historical frame.

There were three possible ways of organising the production: (1) the quarries were run by the abbey itself; (2) they were rented out to operators who in turn employed quarry-workers; (3) the quarries were rented out directly to quarry-workers. Even though the written record does not provide much information, it can be assumed that Laach Abbey operated its quarries itself until it began renting them out after the 13th century. As shown above, this method of organising the work is also known from other places where ecclesiastical orders were involved in mining, like the coal mines near Liege, owned by Val Saint Lambert Abbey, and the ore mines in the Harz Mountains, owned by Walkenried Abbey. There is also a strong indication that this could have been the case in Niedermendig. The lease contract cited above between the abbey and five millstone-breakers seems to certify the acceptance of those five quarrymen as conversi of the Benedictine Order (Resmini 1995, 75 Nr. 51). There is no written record concerning the abbey's quarries in Kruft before 1300, but most likely the quarries were supervised by conversi. This is indicated by the fact that the village Kruft was the property of Laach Abbey. The quarries of Godelscheid may have been organised in the same way. This is also indicated by the general absence of lease contracts before 1300, as no documents are necessary when self-operating a quarry without letting it. Most likely Laach Abbey played the role of an enterprise, presumably until the end of the 13th century, operating its own quarries and supplying the labour force with conversi and serfs. After this period, the abbey was only acting as a landowner, renting out the

quarries within its estate.

Laach Abbey as an actor within the local context

Theoretically it is possible to distinguish three different types of actors who were active in quarrying in the quarry area of the Eastern Eifel: owners, operators and workers. In practice there was often an overlap between the different functions, so that owners could also be operators and some operators were also quarry workers. Laach Abbey was of course not the sole quarry owner active in the Eastern Eifel. The following paragraph will put Laach Abbey into the local context by providing a brief overview of the other, different actors. This is an attempt to identify some of the other actors and their roles, with the underlying goal of trying to identify the people who were actually working in the quarries. To avoid confusion owing to too many names and functions in the text, an overview of those involved, their names and roles will be given in Figure 15.4.

Other quarry owners in the millstone quarries of Niedermendig besides Laach Abbey were ecclesiastical institutions, nobles and some prominent inhabitants like the 'Schultheiß', who had local administrative functions, or the 'Schöffe', who had local judicial functions. The individual persons owning a quarry can therefore be characterised as belonging to a local elite.

As found in the written record, most of the abbey's lease takers were also part of the local elite. In this case, or when citizens from the town of Andernach or other places more remote from the quarries were the lease takers of a millstone quarry, it is most probable that they either operated the quarry and hired workers or in turn let the quarries to quarrymen who ran the quarry and worked in it. Theoretically a Schultheiß or a Schöffe could also have been a quarryman who worked in the millstone quarries. But it is more likely that they were just operating the quarry or letting it. It seems that this group of lease takers, which is also represented among the owners, was in general more entrepreneurial than Laach Abbey who, as we have seen, retreated to its more feudal role as a landowner.

Running the millstone quarries of the abbey and other owners in Niedermendig and supplying the labour force was the task of the 'Layer'. As already mentioned, the only document that makes it possible to identify a group of 'Layer' is the Niedermendig lease

contract. It is the only known example of Laach Abbey's letting a quarry directly to a group of 'Layer' and in this case incorporating them into their order as lay brothers at the same time.

Determining other possible quarry owners of tuff quarries in Godelscheid and Kruft seems to be a bit more difficult. The first documents regarding these deposits are agreements after conflicts about property rights. The party with which Laach Abbey was in conflict concerning property rights in Godelscheid was a knight, and thus a member of the lower nobility. The party in conflict with the abbey over property rights in Kruft were citizens of the town of Andernach, and it is therefore reasonable to assume they were members of a local elite. It seems improbable that either of those two parties were working in the quarries they owned. It seems more probable that the quarries were part of their property and were thus resources for their own building needs, or were quarries which they also let to gain an income.

Laach Abbey's known lease takers of their quarries in Kruft and Godelscheid in the 15th century were craftsmen, most probably stonemasons, masters of a craft who had the right to employ journeymen and who most probably were organised in a guild. The documents indicate that the abbey's lease takers in Kruft and Godelscheid also worked in the quarries, in contrast to Niedermendig.

Source	Place	Date	Landlord/Owner	Leasetaker/Operator	Labour force
Nr. 51	Niedermendig	1200 (?)	Laach Abbey	Siboldus, Otto, Ockerus, Hendenricus and Heinrich (Quarrymen ('Layer'), accepted as lay brothers (conversi) of the Laach Abbey)	
Nr. 213	Kruft	1321	Laach Abbey Johann and Gertrud Fukere (citizens of Andernach)	Laach Abbey 1/3 Johann and Gertrud Fukere (citizens of Andernach) 2/3	
Nr. 280	Weibern	1341	Laach Abbey Knight Simon von Kempenich	Laach Abbey (?)	
Nr. 297	Niedermendig	1344	Dünnwald Abbey	Johann Huent	Johann Huent?
Nr. 450	Niedermendig	1389	Laach Abbey	Heinz Valken (quarryman?) Johann Kurtmann and wife (citizens of Andernach)	Heinz Valken (quarryman?)
Nr. 477	Niedermendig	1403	Laach Abbey Knight Haust von Ulmen Jakob von Mendig (Schöffe in Andernach) Friedrich von Saarwerden (Schöffe in Andernach) Konrad Honde (citizen of Andernach) Gerhart Kurtmann (citizen of Andernach)	The abbey's vassals	The abbey's vassals
Nr. 485	Weibern	1412	Laach Abbey	Tilgen von Weis (stonemason?)	
Nr. 488	Weibern	1413	Laach Abbey	Johan (stonemason?) and his journeymen Tilgen Trommer (stonemason?) and his journeymen Heinrich Korfe (stonemason?)	
Nr. 635	Niedermendig	1459	Laach Abbey	Nikolaus Roegels	
Nr. 671	Kruft	1465	Laach Abbey	Johann Metzen (stonemason?)	
Nr. 727	Niedermendig	1478	Laach Abbey Peter Weckesser Nikolaus Jogels	Peter Weckesser Dietrich Keymer	
Nr. 744	Niedermendig	1480	Laach Abbey Priest of Obermendig	Engelen Schofs (Schultheiß in Obermendig) Dietrich Keyfenneymer	
Nr. 879	Niedermendig	1532	Laach Abbey Parish of Mayen Knight Phillip Haust von Ulmen	Johan and Else Froyn Johannes and Grete Fenis Nies Melis and Grete Zeck Matthias and Agnes Vester	

Figure 15.4: Names and functions of actors in the quarry region of the Eastern Eifel according to the written record. The numbers in the column source refer to the documents listed in Resmini (1995).

The question that remains unresolved is, who actually worked in the quarries of Kruft and Godelscheid before the 15th century, and who quarried the tuff in Kruft and shaped the stones, which were used in the many building projects along the Rhine and the North Sea coast in the 11th to 13th centuries? Regarding the labour force in the abbey's quarries in Kruft, it seems probable that they were either lay brothers or more probably serfs who worked under the supervision of a skilled quarry specialist. At least from the 18th century, it is known that the serfs of the abbey worked in the quarries seasonally. Another possibility is that they were stonemasons who leased and ran the quarries. The problem is that all the written sources postdate the period when the tuff of the valley of the Krufter Bach was used for the building projects along the river Rhine and the North Sea coast.

Despite the attempt to identify the group – or even the actors – in the quarries, the quarry workers who hewed stone for the churches along the Rhine and along the North Sea coast remain people without a written history and without archaeology.

Merchants and shippers

The trade and transport of querns, millstones and building material from the Eastern Eifel was connected to the river Rhine. Most likely, heavy goods such as stones were transported on the water ways. This is indicated by wrecks from the 8th to 9th centuries, but the written sources are scarce. The wreck of Lüttingen, which dates back to the 9th century, contained some Mayen querns, as did the wreck of Graveney from the 10th century (Ellmers 1972; Evans and Fenwick 1971). A cargo of tuff is only known from the boat of Kalkar-Niedermörmter (Obladen-Kauder and Peiss 2000) dating back to the end of the 8th century. The cargo contained stones with adherent mortar, indicating that it was material recycled from Roman ruins. These finds have in common their predating of the foundation of Laach Abbey, which preclude a connection.

It has been argued that trade initially took place within the manorial system between different estates of landowners that were spread across the country with their serfs serving the function of shippers (Elmshäuser 2002). But the only estates owned by Laach Abbey on the transport route that could have been used as hubs in the stone trade were situated in Cologne. Since the lack of suitable hubs

would restrict the range of trade in this form, it is not likely that the stone products deriving from the abbey's quarries were distributed in this way. Furthermore, the estate-based transport and trade, as well as the famed Frisian trade on the Rhine, seem to belong mostly to the 8th and 9th centuries (Elmshäuser 2002, 43; Ellmers 1972, 16).

Concerning the medieval trade with quernstones and millstones, no written sources are preserved that could provide information about the organisation of the trade, or Laach Abbey's role in it. According to later sources, it can be assumed that the trade in querns and millstones was entirely organised by merchants who purchased them directly at the quarries (Scholz-Babisch 1971, 444 Nr. 493).

There are two known written sources, which deal with the transport of tuff stone from the deposits, where also the abbey owned quarries. These are the chronicle of the abbey of Mariengaarde in Western Frisia from the late 12th century and the accounts from the cathedral building in Utrecht in the early 16th century.

According to the chronicle of Mariengaarde in Western Frisia (present-day Netherlands), the abbot went together with some monks to Deventer to buy tuff stones for the enlargement of the monastery. From the source we understand that at the end of the 12th century tuff was shipped in large quantities down the Rhine to Utrecht and Deventer, which served as hubs for the tuff stone trade. Having arrived in Deventer, the monks examined the cargo of several ships. While going from ship to ship examining their cargo, they lost their purse in the Ijssel. The purse, containing the silver that was meant to be the payment for the stones, was retrieved by a miracle (Wybrands 1879, 56f.).

This source indicates a routinised trade with tuff stone at the end of the 12th century. According to the chronicle, ships were the most prominent means of transport for tuff, and the Rhine was the main route. The fact that the monks went to Deventer to purchase the stone and the fact that they climbed from ship to ship to examine the cargoes to choose from, indicates that the tuff was shipped to Deventer by merchants at their own risk. If they would have ordered the building material, the monks would not have needed to travel to Deventer; neither would they have been able to choose the stones. Mariengaarde was approximately 120 km from Deventer and would have been easily accessible via the North Sea. Unfortunately the

source does not tell how the stones came from Deventer to Mariengaarde (see Figure 15.5 for a depiction of the distributions patterns).

The accounts of the cathedral works of Utrecht also suggest a trade organised by merchants but they also give an example of a procurement campaign. Even though relating to a period three centuries after the climax of the medieval tuff stone trade, the accounts offer a valuable insight into the acquisition of building materials. Clerics who were members of the cathedral works and the cathedral chapter also had affiliations with a church in Cologne. The brother of the architect even seemed to have lived in Cologne, thus being well-informed about the situation in the Rhineland. They launched a campaign for material acquisition in the area of the middle Rhine. The clerics themselves went to Cologne and further up the Rhine to Koblenz to buy the building materials: in Koblenz they most probably bought roofing slate, in Cologne trachyte from the Drachenfels and tuff from Weibern. For the transport of the material they bought boats and hired skippers and crew. The ships were disposable ships, so-called 'Lauertannen'. These were simple flat bottomed ships used for heavy and relatively resilient cargo. They were often just roughly put together and torn apart again when the cargo had reached its destination. The wood was often sold as building wood or firewood.

Clerics of Utrecht Cathedral led this expedition and even negotiated toll affairs with the archbishops of Trier and Cologne. Under the guidance of these clerics, the stones were shipped to Utrecht where the ships were sold and the crew dismissed (Jappe Alberts 1954). But there were also other ways of organising the stone trade. Some cathedrals had relations with merchants from whom they ordered their stone. It was, however, also quite common that merchants traded with stones at their own risk (Jappe Alberts 1969, 36). As the chronicle of Mariengaarde suggests, this is also the most probable construction for the 12th century, when there was a more regular and routine trade with tuff.

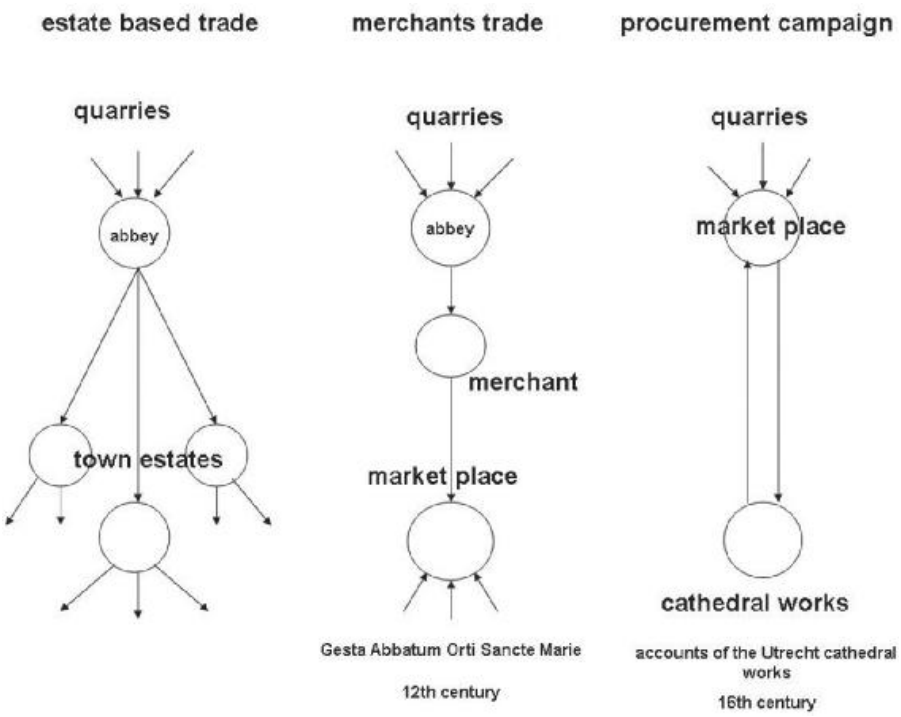

Figure 15.5: Possible ways of the distribution of stone products from the Eastern Eifel. From left to right: estate-based trade within the manorial system; goods are distributed between different estates belonging to one landowner. Merchants' trade: merchants buy from the producer and sell at a market place at their own risk. Procurement campaign: emissaries of the cathedral works travel to a market place, buy building material and organise the transport to the building site.

Customers

The abbey itself of course also acted as a user of the stone products made in its own quarries. Since the economy of the Benedictine Order was based on agriculture, the abbey was likely to have had a demand for querns and millstones, and building stones were needed for the construction and maintenance of the monastery.

For the building of the monastery, tuff from Godelscheid was used, but also from the crater walls of the nearby Lake Laach and also basalt from Niedermendig. It is likely that the sale of stone products originated from the sale of production surplus.

Until the enactment of thirlage by emperor Friedrich Barbarossa, almost every household owned a quern and could have been a possible consumer. By the enactment of the thirlage, household grinding of cereals was prohibited and milling restricted to the mills belonging to the landowners. This led to a declining demand for querns, and as a consequence, the production of quernstones declined too. Querns were still produced and used on a considerable scale, even though millstones became the main product of the quarries in Mayen and Niedermendig. Querns were so common that they left almost no trace in the written record, but they are omnipresent in the archaeological record. In the Early Modern period, seagoing vessels were apparently responsible for a remarkable part of the demand for querns (SAM 1752). This possibly also applies to the early modern military in general.

The document that mentions the use of querns on sea ships is supported by the archaeological record. There was also a quern on board the ship that sank in the 17th century off the Norwegian coast near the island Bømlo. The quern was made of basalt which possibly originates from Mayen or Niedermendig, and was rather a part of the ship's equipment than part of its cargo (Hansen 2006, 34) (Figure 15.6).

Millstones were naturally bought by customers different from those who bought querns. Millers of course bought the largest share, but towns also bought millstones. It is known, for example, that Hamburg had a stock of millstones. The Teutonic Order also ordered some millstones from Mayen (Hörter 2003, 173).

The usage of querns or millstones was not restricted to the

grinding of cereals. Virtually every activity which involved the crushing of material led to the purchase of a quern or mill. Querns were also used to grind salt, herbs and later on even coffee (Figure 15.6). Querns and millstones could also be used for ore processing, paper mills, etc.

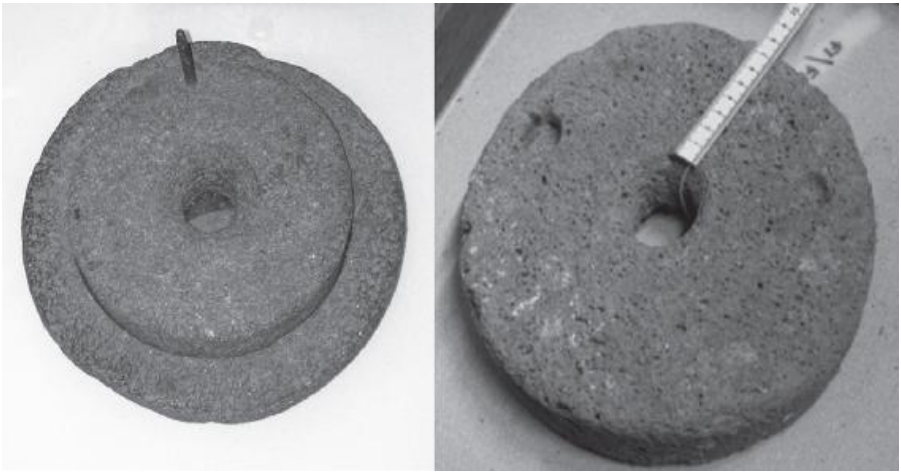

Figure 15.6: A coffee mill of the 18th century from Iceland (left), upper stone of the quern of the so-called Mostraskipet which sank off the Norwegian coast at Bømlo (right) (courtesy of Bergen Sjøfartsmuseet). Both querns are made of basalt. Both upper stones have approximately the same diameter.

While querns and millstones met a more general demand, the tuff trade supplied demand from a different kind of customer. These must have been economically strong enough to fund building projects. The most important customers for tuff in the 12th century and later were ecclesiastical institutions. The 500 churches along the Rhine and along the southern and eastern North Sea coast bear witness to this. The tuff was mostly used for the building of churches, even though secular buildings were also built of tuff. However, many of the secular building projects, such as fortifications, dwellings, official or representative buildings, were mostly connected to the clergy or to nobles. The building style of the churches suggests close relations between the clergy in the Netherlands, eastern and northern Frisia, Schleswig and Denmark, and the clergy in the Rhineland. The style of some churches in eastern and northern Frisia and in Denmark are so similar that it is possible that complete crews of craftsmen were hired to build churches in the style they were acquainted with (Haiduck 1992, 34). Besides the clergy, towns also bought tuff for their building purposes. This can be verified for Cologne, as their complaint about the size of the 'Godelscheider' stones shows (Kuske 1917, 53). The towns of Andernach, Koblenz and Duisburg also used tuff for the construction of their town walls in the 12th and 13th centuries (Bär 1888, Huiskes 1980) (Figure 15.7).

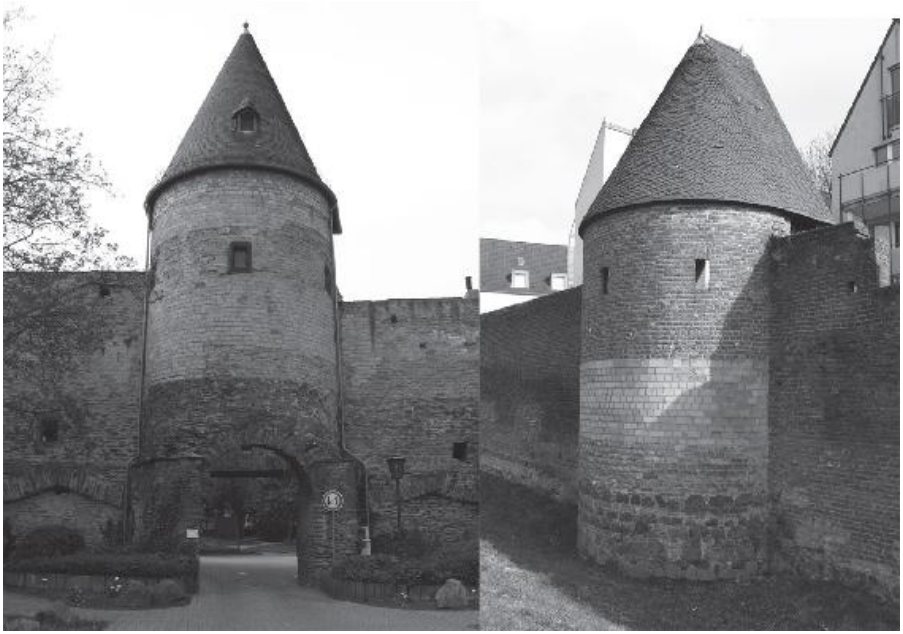

Figure 15.7: The town walls of Andernach (left) and Duisburg (right). The light coloured sections are built in tuff.

Conclusion

Laach Abbey owned a number of quarries in the proximity of the monastery. The role played by the abbey in the quarries changed during the Middle Ages. This change seems to follow a general pattern, which can also be observed in the mines of Liege and the Harz Mountains, which were also owned by monasteries.

Until the end of the 13th century, it seems that Laach Abbey acted as an enterprise and operated its own quarries in Niedermendig, Kruft and Godelscheid itself with skilled lay brothers, the so-called conversi, as supervisors and possibly also as part of the labour force. After the 13th century, it seems that the abbey retreated to the role of a landowner that only rented out its quarries. Nevertheless, it cannot be excluded that the quarries of the village Kruft, which belonged to the Abbey, were operated by the inhabitants of the village and the serfs of the abbey after the 13th century. The abbey does not seem to have been directly involved in the trade with its own merchants and ships. The distribution of the stone products of the Eastern Eifel was most likely the result of an organised trade, where merchants traded at their own risk. With the declining volume of trade in tuff after the 13th century, procurement campaigns also became a means of distribution.

Laach Abbey also played a role as a user of its own quarries' products. The other customers of the abbey's quarries were manifold. Until the enactment of thirlage every household owned a quern, which needed to be replaced from time to time. In the Early Modern period, the most important buyers of querns were sea ships or the military. Millstones were mostly bought by millers or towns. The most important customers who bought building stones were ecclesiastical institutions, but also nobles and towns.

Abbreviations

LHA KO: Landeshauptarchiv Koblenz
SAM: Stadtarchiv Niedermendig

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Chapter 16

Iron producers in Hedmark in the medieval period – who were they?

Bernt Rundberget

In the medieval period, iron production took place across large parts of the wooded areas and upper valleys of southern Norway. Only a few sites are known from north of the Trondheim Fjord in central Norway, and while production is known in some places in the western part of the country, it was not widespread. It was to the east of the large mountains, between Agder in the south and the Swedish border in the southeast, that the majority of the production took place. This article deals with a part of the eastern region: Østerdalen and Solør, in the county of Hedmark. In this area, tens of thousands of archaeological finds evidence the scope of this activity. Based on surveys and excavations, our knowledge of the technology, organization and spread of iron production is improving. However, an understanding of the actors involved in that production is still sparse. Therefore, the main aim of this article is to examine what sources tell us about this topic and, where possible, to try to provide a better understanding of the iron producers of medieval Hedmark.

The background for this work is provided by the excavations in the Gråfjell area, in the municipality of Åmot, Hedmark County, East Norway (Figure 16.1), which were undertaken ahead of the Norwegian Ministry of Defence's construction of a firing range and training area. The Gråfjell area is located in a wooded landscape, separated by river valleys such as Østerdalen and Solør, where agricultural farms are located. The Gråfjell project is the largest

archaeological project to have been undertaken in an outfield area in Norway (Stene 2007). Widespread use of the forest has been demonstrated here (Risbøl *et al*. 2002; Amundsen 2007; Rundberget 2007). Of particular interest is the large number of archaeological sites related to iron production in the period *c*. AD 950–1300 with a climax in the period *c*. AD 1150–1280. More than 2000 archaeological sites related to this production are known, of which 40 iron production sites, 250 charcoal pits and 30 roasting places have been excavated (Rundberget 2007, 2013). This material, which points to an intensive and well-organized production, will be presented later.

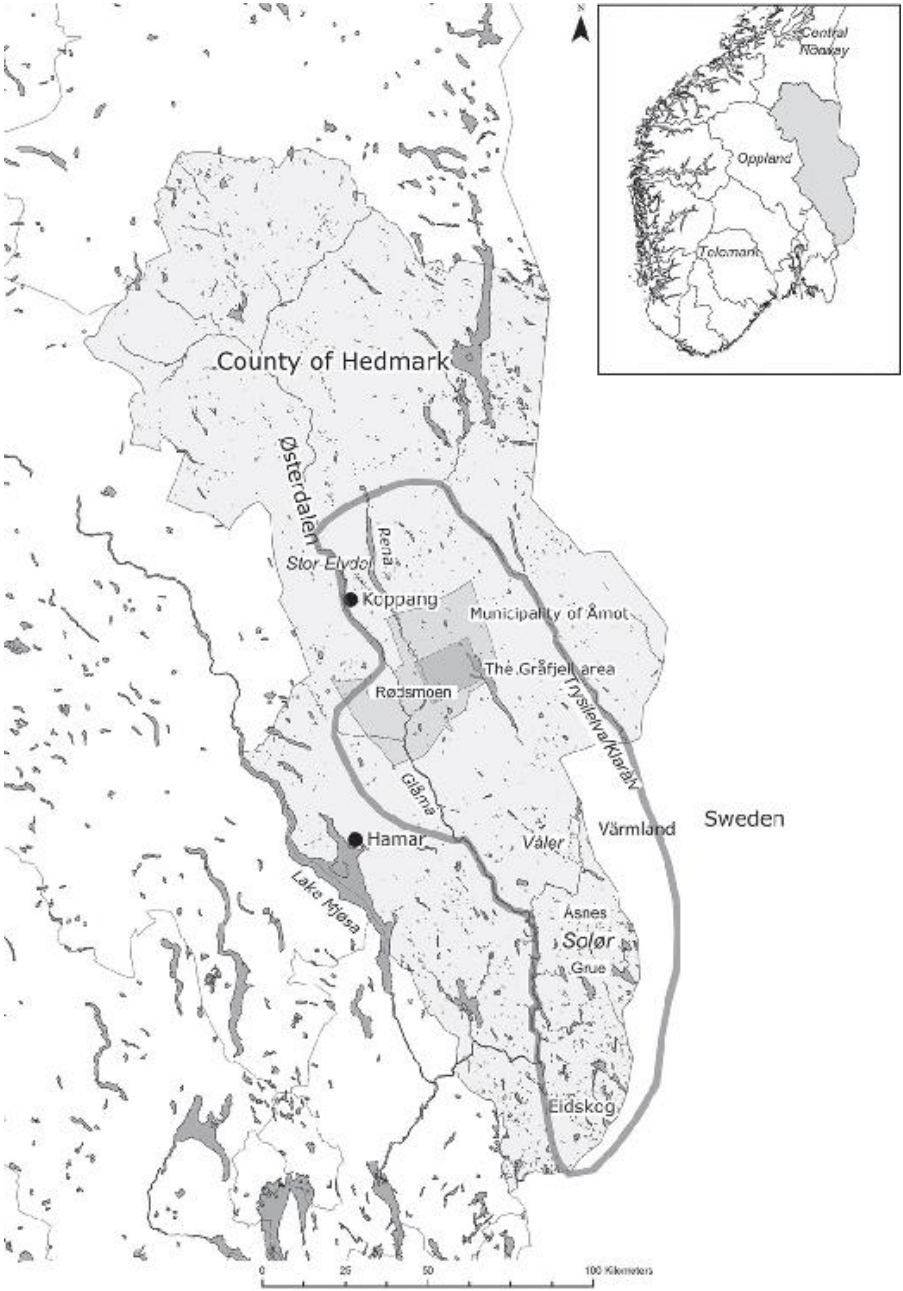

Figure 16.1: County of Hedmark including places mentioned in the text and the excavation area of Gråfjell. The grey line is the defined border of the Hedmark tradition (Map base: NMA, Permit number NE12000-150408SAS).

Iron production in Østerdalen and Solør – evidence of uniqueness

Medieval iron production in southeastern Norway has been surveyed and excavated in several places, for example, Møsstrond in Telemark county (Martens 1988), Dokkfløy (Larsen 1991, 2009; Narmo 1996), in Oppland county, and Rødsmoen (Narmo 1997, 2000) and Gråfjell (Rundberget 2007) in Hedmark county. Research shows that different systems (in terms of their technology and organization) were in use in these areas (Narmo 2000; Larsen 2009). However, parameters such as morphology, production processes and the internal organization of structures at the production sites, seem to indicate that one almost uniform system, here denominated as the 'traditional system', was common for large parts of this region. Furthermore, this particular technology also seems to have been applied in southern parts of Central Norway and parts of West Norway (Rundberget 2012), as well as in the southern part of Sweden (e.g., Millberg 1985; Englund 1994; Strömberg 2008) and probably also in Denmark (Voss 1995).

However, in one region – Østerdalen and Solør in the central and southern parts of the Hedmark county – an entirely different way of producing iron prevailed. This other system differed from the traditional as far as organization, production methods and scale go (Figure 16.1). Thus, the excavations at Rødsmoen in the 1990s (Narmo 1997) and in Gråfjell (Risbøl *et al.* 2002; Rundberget 2007) in the municipality of Åmot, have brought to light what is, to date, an otherwise unknown tradition, here denominated 'the Hedmark tradition'. The types of furnaces and charcoal pits, the internal organization of structures at the production sites, the use of resources and its organization within the landscape distinguish the iron production in this region from that known to have taken place in other parts of southern Scandinavia.

Structures (furnaces, ore and charcoal stores and slag heaps) on the production sites within the Hedmark tradition are organized spatially in production units with a common layout, which I have called 'the basic model'. This model comprises a furnace with the associated slag heap on one side and ore and charcoal stores on the opposite side. Out of 39 excavated sites in the Gråfjell area, 20

production sites have a particular form which I have called the ‘standard model’. The standard model is made by physically inverting the basic model by means of a line through the ore and charcoal stores (Figure 16.2). Apart from the basic- and standard models described, there are only small variations in the actual layout of the production sites. The amount of iron produced on each site was in the range of 1,000–60,000 kg, where the minor sites have one basic model and the largest sites comprise several basic and/or standard models. Some of the sites represent long and intensive production. The sites

When studying the organization within the landscape, we see that charcoal pits are located in the immediate areas around the iron production sites. The distances between pits and the places of production vary from a few meters to about 500 meters. The number of pits linked with the production sites also varies, from one to 50, reflecting production size. On the other hand, we find numerous roasting places near ore-bearing bogs, and in some cases these were more than 3,000 meters away from where the production took place. Thus, the distribution of roasting places follows a different pattern than that of the charcoal pits. While charcoal pits are situated throughout the area around the iron production sites, the roasting places are concentrated in smaller or larger groups, situated next to the resource. It is interesting that we find neither charcoal pits nor iron production where the roasting places are located.

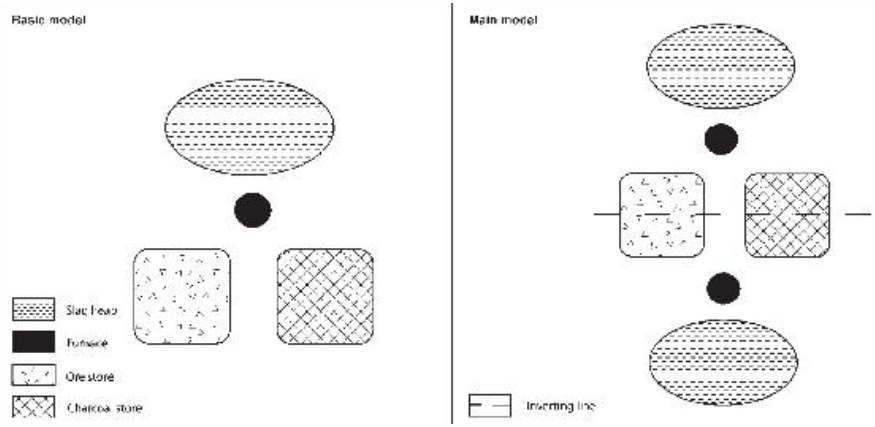

Figure 16.2: The basic and standard (main model) structure of iron production organization in medieval Hedmark (Illustration by B. Rundberget).

The distribution within the landscape of the production sites, roasting places and charcoal pits provides much information about resource use and how the activity was organized (Figure 16.3). And out of the large extent of the production, I mean both utilization of resources and distribution in the landscape were planned and regulated. This altogether points to a tradition of iron production in the Gråfjell area which was based on collaboration between people over organization and technology (Rundberget 2009; 2012; 2013). In the following I will try to highlight questions concerning this unique tradition. What did it spring from, and who was responsible for production? Is it possible to understand the unique Hedmark tradition through a study of the actors involved in economic gain, as well as from a study of the control of landscape and resources? And further, who was responsible for the distribution of raw materials and products from Hedmark into the world? How many people could have been active in this work at any one time? How did this affect the local rural community in terms of number of farms and actors involved?

Østerdalen and Solør in the late Viking Age and early medieval period

Østerdalen is distinguished from other valleys in southeast Norway because of its late agricultural migration. According to previous research, the valley was settled from the end of the Iron Age, and the self-sufficient rural society has been seen as the primary model of this settlement (Brøgger 1942). Furthermore, before the end of the Iron Age, the area was dominated by hunting societies. Until recently, this has been the dominant view of the region. However, in recent years archaeological research on woodland resources has contributed to a change in this view (e.g., Narmo 1997; Bergstøl 1997, 2008; Amundsen 2007; Rundberget 2007, 2013). After the archaeological excavation at Rødsmoen, it was suggested that from the early seventh century two different cultural groups – a community of agriculturalists and a group who subsisted by hunting – took Østerdalen into use (Bergstøl 1997; Narmo 2000). In this early period, the agricultural population only used the hunting territories to a limited extent. But towards *c*. AD 950, a new economic system was introduced, whereby the traditional hunting and fishing areas began to be exploited for resources such as timber and tar, and particularly for resources related

to iron production. Furthermore, in the Gråfjell area, hunting by means of large pitfall tars ended. Finally, evidence exists of both fixed and temporary settlements in the forests, which are considered to have their origins in the agricultural society (Amundsen 2007). Thus, it seems that the hunter groups abandoned these areas and moved from the woods to new areas not covered by the excavations.

Analysis of several written sources from the municipality of Åmot shows that there were 72 farms in 1350 (Sørensen 1999). Based on archaeological sources, it seems likely that almost half of these were cleared at the end of the Viking period, while only a few date as far back as the seventh century (Lillevold 1973; Harrson 1996; Narmo 2000). The studies, which point to an expansion from the tenth century, are all based on agricultural settlement and grave finds which are localized in the valleys by the large rivers of Rena and Glomma (cf. Figure 16.1). In addition, the woodlands, as mentioned above, were settled in the late Iron Age (Amundsen 2007). There is no reason to believe that these farms were the only ones in this type of landscape. Instead, I expect that this settlement form would have been widespread in the Viking Age and the medieval period. Thus, the area saw an expansion in land use during this period.

The large-scale iron production has to be seen in the context of this expansion. The ^{14}C-dates and the rise in settlement and production have clear correlations. Therefore, my hypothesis is that the settlement expansion is probably explained by the rise in iron production. New surveys in the municipalities of Grue and Åsnes in Solør, in the southern part of Hedmark (cf. Figure 16.1) show that iron production using the same technology has an earlier date originating at about AD 700, and it seems clear that production gradually spread northward (Rundberget 2013). At these earlier-dated sites, there is evidence of an organization which, in my view, is not as developed as the organization seen in the Gråfjell area. The startup time of the iron production correlates to the establishment of the regional kingdom in Grue, which according to Ynglingesaga has its roots in the late-seventh century. Other archaeological traces, such as monuments, finds and place names also support this view (Rundberget 2013).

It seems that this society established and developed a unique form of production, which shortly thereafter became an important

economic force. Later this group expanded north where resources were richer and pressure on the woodland resources was less intense. Controlling these areas led to an even greater economic advantage. But, when moving, they also ventured into unknown areas. It is important that this 'new' collective of Østerdalen brought with them a partially developed form of production that was refined to become the system we see the traces of in Åmot. The fact that the group physically and ideologically learned to understand and use the new and 'wild' landscape enabled this to occur; physically, in the sense that they organized the utilization of resources in a manner different from that of the surrounding regions, and ideologically in the sense that the technological system took a form which differs from that of other groups. A result of this was the proprietary technology of iron production which developed at the same time (Rundberget 2012).

So, as I see it, the colonization of new land through the initiative and control of regional kings or chiefs, and the internal development of an iron production technology, led to streamlined, large-scale production. In the medieval period, probably in the eleventh century, it seems as though King Harald Hardrada of Norway had taken over control of this part of the country (e.g., Andersen 1977, 153; Krag 2000, 74–75; Dørum 2004, 36–43). In the same period, common rights were also developed (Solem J. 2003, 244). They are described in the provincial laws and elaborated in the Land Law of 1274. It is uncertain whether Østerdalen was covered by any landscape laws in the early medieval period. However, if my hypothesis that territorial control already existed during the earliest part of the medieval period is right, this suggests that a kind of common sovereignty and related rights predominated at this time.

Scale of production in time and space

In Gråfjell, 115 iron production sites have been identified, and at Rødsmoen seven have been excavated. In all, more than 180 sites have been discerned in Åmot. Systematic and thorough surveys have not been carried out throughout the whole municipality, but based on their density in the Gråfjell area, I would assume that the number of production sites is at least 400, and probably more.

Surveys and excavations have shown the spread of the Hedmark tradition. The southern and central parts of Hedmark were the main

areas, but production sites are also widespread in the northwestern part of Värmland in Sweden (Svensson 1998; Myrdal-Runebjer 1999). To the north, the production area extends north of Koppang, while Eidskog is the southernmost area where production is known. The rivers of Glomma and Klarälv seem to form the principal western and eastern borders, but the tradition also took hold at Hedemarken, west of Glomma.

Altogether, about 1,000 sites with iron production within this tradition have been identified in Hedmark and Värmland. Based on distribution and density, I estimate that only about 15% of all sites have been found to date, and as many as 7,000 monuments from this unique tradition probably exist. Calculations of volume from the Gråfjell area produce an estimate of an average output of 17.6 tons of iron at every site. This means that as much as 130,000 tons of iron may have been produced. Because this amount exceeds both local and regional needs, it is likely that the requirement for this level of production had its foundation in interregional relations (Rundberget 2013).

The ^{14}C-dates show that the iron production took place in the period AD 950–1300. Based on radiocarbon dates, it seems that activity was at its highest from *c*. AD 1100 to AD 1250; thus there was less need for labor during the first 150–200 years and the last 50 years of the production period. Because of changes in the weather over the year, I find it most probable that the activity was seasonal, with preparations such as ore extraction, drying and roasting of ore, chopping of wood, digging of pits and burning of charcoal taking place in the winter, spring and early summer, while the actual production was concentrated in the autumn. Estimates from Gråfjell and Rødsmoen show that on average, the sites were in use for about five to 15 years. This indicates that more than 20 sites were in operation every autumn throughout the most intensive period. There is no doubt that two persons can easily operate a furnace. But if we assume that furnaces would have run continuously, and that they were run cyclically with two furnaces, the workers would have needed to work shifts. This implies that three to four workers were required to operate any of the sites at any given time (Figure 16.4). However, the remains of small, temporary houses indicate that these numbers were the maximum. One can thus expect that 200–300 persons may have

been active in Åmot in the most intensive periods. In addition, there was a need for people engaged in the other activities, such as chopping wood, preparing and charring timber, digging and roasting bog ore and so on.

The actors in iron production – a central group in the agricultural community

The estimate of the need for labor is fascinating when seen in relation to the abovementioned settlement in Åmot. Although activity was probably cyclical, the scale of production must have demanded a lot of working capacity. It was necessary for each farm to devote one to four people for large parts of the season – that is, if all farms were part of the production, which seems unlikely. Not all farms had the ability to deliver such a large labor force. Capacity at farms in the medieval period was often limited to subsistence or small craft production (e.g., Helle 1993, 146–148). However, the scale of iron production indicates that there were probably some settlements which were partially specialized in such production. These workers may have come from some of the rural farms, or from more peripheral settlements in the woods.

Either way, it seems certain that the actors were part of the agriculture society, and not from another outside group such as the old hunting society, for the following reasons: firstly, this can be read in the context of population expansion; secondly, it is implicit in the contemporary increase in iron production; and thirdly, it is expressed by the fact that only domestic animal bones are found in the fireplaces at the iron production sites. Had there been other actors, for example, groups traditionally connected with a hunting lifestyle, there should have been a higher proportion of wild animals in the diet.

Still, I do not think there were groups or collectives in society that had only one role or task. The actors were not only specialized in iron production, but in what I will describe as a proto-industrialized production, where production was their primary work for parts of the season, and in other parts they worked on the farms. The term 'proto-industrialization' has its origin in Franklin Mendels' work (1972). He describes proto-industrialization as a semi-professional craft which existed before mechanical industrialization. He developed this idea when he studied the agricultural and industrial society of Flanders of

the period 1650–1900. At that time, a larger part of the labor force was used in rural, market-oriented traditional crafts. The reason for this was increasing demands for seasonal employment in agriculture. In low season, the workers engaged in crafts which resulted in an increased productivity. According to Mendels' thesis, agriculture was still the main business, but a central thought is that the workers had a dual role. The proto-industrial production was carried out at the homesteads and was intended for an interregional market. Mendels (1972, 249) identified several factors which had a significant impact on how and why proto-industrialization took place: the rise in population, increased production based on efficiency, the colonization of new land and the opening of new trading networks.

Leslie A. Clarkson (1985, 15–16) has discussed the term 'proto-industrialization' on the basis of Mendels's hypothesis, and adds to it when she indicates that towns and trading centers were located in the production zones as centers of trading. But Clarkson, among others, criticizes parts of Mendels' theory, in particular the chronology, where it was performed and the scale – the border between crafts, proto-industry and industry. However, the main criticism is that many professions are disregarded; for example, Mendels considers cotton production, but the local activities of tanners and smiths, as well as the capital-intensive mining and milling production are excluded. Interestingly, Jürgen Schlumbohm's (1996, 17, 22) view adds to the debate by suggesting that, although the term 'proto-industrialization' refers strictly to Mendels's theory, the concept of 'industrialization before industrialization' can be valuable if one frees it from its strict definition. The definition may thus be a good conceptual framework for explaining macrostructures in pre-industrial and proto-industrial society (Schlumbohm 1996, 16). In this case, proto-industrial production can be a good term when talking about the large-scale iron production in the medieval period that was meant for external markets, like we see in Østerdalen.

The economic theory of proto-industrial production is tightly connected to the degree of specialization. According to Cathy Costin (1991, 3–4), degree of specialization must be related to the variations of the individual or group's participation in economic activity, and to the relationship between producers and consumers. In order for specialization to happen some players must choose to produce for

profit or commercial returns rather than for their own subsistence. However, this requires that an economic system which makes it possible to conduct this type of business is already established (Golden 2010, 98). Costin (1991, 8) has highlighted four parameters for describing degree of specialization: (1) context – the degree of the elite's impact on production, where the actors can be anything from completely independent to totally subjected to an administration; (2) concentration – whether production is aggregated or dispersed, which also includes the number of production sites within a given territory; (3) scope – production scale, from self-sufficiency to industrial production; and (4) intensity – which relates to whether production is driven by part-time or full-time specialists. In addition, organization is an important element in this model, for example, who is responsible for production, who manages the production and how it is distributed.

These variables are a useful tool in defining the degree of specialization of iron production. Applying these parameters, it can be seen that there was a high degree of specialization in the Gråfjell area. According to its context, production was indirectly controlled by the regional chiefdoms and later by the King. Looking at concentration, there is no doubt that the traces of evidence point to the existence of a large-scale business. The scope can be derived from the concentration where the number of monuments and the volume enables the dimensions of production to be quantified. Intensity is the most uncertain variable, and it is also related to the main topic of this article – the iron producers themselves. As mentioned, there are few things which suggest that iron production was the one and only activity. If that had been the case, it is probable that larger settlements located at or close to the production sites would have been found, since it is unlikely that the actors would have lived far from their work if this had been the only activity they were engaged in. I therefore consider that the iron production was tied to the regular agricultural and forest settlements, and where work was organized, as a cyclical occupation between agriculture and production.

The production was not performed by force or direct control, and the administration, which was first by the Viking chiefs and later by the King, may have stimulated production by conferring privileges and benefits, which is indicated by the written sources (Rundberget 2012). A key factor of the organization was that the chiefs or king controlled

distribution. Here goods were channeled and profits obtained.

Population growth, the need for income and colonization were particularly important factors in proto-industrialization. And it is precisely these three factors, together with the development of technology and market commercialization whereby products became commodities, which characterize a proto-industry. The growth of the settlement and the development of iron production within the unified Hedmark tradition clearly have a proto-industrial character. Migration to the forests of Østerdalen, Solør and northwestern Värmland, colonization of new land with clearly defined boundaries, an ever-increasing need for revenue, the establishment of markets and not least the development of large-scale iron producing technology are all elements which fit into the model. Furthermore, a highly specialized organization based on control, yield and regional cooperation existed over and above these factors.

When discussing the degree of specialization, one important topic is the actor's status. We must therefore ask what position the bloomery smelters occupied in society. Almost no research concerning their status in terms of iron production has been carried out in Norway, most probably due to the lack of relevant material.

The lack of evidence of the symbols, rituals, actions and elements that could tell us more about the actors in Norwegian iron production, both in the archaeology and in written sources, is striking. What we do have is the mythical role of the blacksmith. In Old Norse mythology, iron is connected with the 'underworld' where the smiths and the dwarfs had contact with 'the other side'. This view is common in myths, sagas and Edda poetry. In this manner, the smiths were afforded a mythical role throughout prehistory (e.g., Englund 1994, Rønne 2002, Barndon 2005). But how did these myths arise? Lars Erik Englund (1994, 281–298) makes a good point here when he views the position of the smiths as craftsmen equipped with specialist knowledge. The skill involved in the work, as expressed by elegant products such as tools and weapons, probably meant that the most competent smiths were admired and perceived as mystical figures. When viewed in this way, it is easy to understand how these myths came to be created – they must be seen primarily as originating from the smith's possession of knowledge and skill (Englund 1994, 286; Barndon 2005, 70; Rundberget 2005, 76–77).

However, it is clearly important to distinguish between the actors in bloomery smelting and the blacksmith. There is no evidence in the archaeological or historical sources to suggest that these crafts were engaged in by the same man or group in the prehistoric period. Rather, there are indications that the crafts differed. At Rødsmoen, just southwest of the Gråfjell area, the charcoal pits used in the bloomery and smithy processes seem to be different from one another in shape, which expresses differences in tradition and ideology between the groups at Rødsmoen (Narmo 1997, 166–171). In Gråfjell, there are no traces or evidence of smithies. The only smithy process performed here is a primary refining process carried out to squeeze the slag out of the blooms' outer layer. This is done by the bloomery smelter immediately after taking the bloom out of the furnace. Looking at other regions in Norway, the picture is the same. We do not find smithies in the areas where production was taking place.

A study of metalwork in the period AD 600–1100 in central Norway also shows a separation of the professions. Archaeological finds and written sources describe the Kleinsmeden as the most skilled smith, making the best and most elegant tools, a trait emphasized through respect and prestige. In contrast, the jobs done by the bloomery smith and blacksmith have been interpreted as low status due to their absence from the written sources (Sauvage 2005, 77–78). This model is based on iron production as a minor business in the self-supply farming economy, although some of the smiths were associated with the King's need for weapons and prestige.

This picture changes if one interprets iron production as a partly specialized craft (e.g., Martens 1988, Bårdseng 1998). Such models require actors who are skilled, or even highly skilled, in their profession. As I understand the archaeological material from Gråfjell discussed above, this phenomenon clearly must have existed in this area. Technology designed for large-scale production, the practical organization at production sites, a clearly defined organization within the landscape and the scale of the production, all taken together and obviously based in a joint foundation, point to this. Therefore, I suggest that the actors in this production were skilled semi-professionals who primarily had production as their main employment.

However, although the actors are considered specialists, this does

not define their social status. Stigmatization of the blacksmith or bloomery smelter is described in the literature. According to several ethnographical studies, smiths who were specialists in metalwork were stigmatized by their chief in order to gain control over production and distribution. Such a model has been proposed for the early Iron Age iron smelters in central Norway. Ragnar Bjørnstad (2003, 93) pointed out that the actors were specialists in the craft, but clearly dependent on the leaders in the community. A more stratified model is described in Sudndalen in Hallingdalen in the medieval period (Tveiten 2010, 256). Here, sources indicate that two different groups acted in the production: a low status group of slaves or causal laborers who were responsible for the heavy work, such as chopping wood and burning charcoal, and a group of specialized bloomery smelters of higher status, who were responsible for production and smithy work. At the top of the hierarchy were the local landowners, who controlled the activities in the woods. This interpretation is based on the fact that the groups were settled in different areas, the low status group next to the charcoal pits, and the high status smelters at the shieling.

There are no indications that such a model can be applied to Gråfjell. As already stated, individuals from a single group acted in production. There is, as far as I can see, no evidence of settlements which might distinguish between different crews or hierarchical systems in the production. The only housing found at the production sites comprises small, temporary buildings. In addition, there are connections between some of the single production sites and shielings which have ^{14}C-dates going back to the late Iron Age and the medieval period (Amundsen 2007; Rundberget 2007).

In the Gråfjell area, two shielings were excavated. The investigations show that at Rødseter permanent settlements had been established in the late Iron Age (Stene 2014). Melgårdsetra functioned as a shieling in the same period (Amundsen 2007, 285). The other three shielings, which dated to the late Middle Ages, have not been excavated and from other dated sites and monuments at these shielings the oldest phase of activity has not yet been discovered here. A pollen sample taken at lake Deisjøen indicates that it was used as driven pasture back to the late Iron Age (Solem, T. 2003, 27), which clearly supports my view.

The Rødseter shieling was deserted from *c*. AD 1000, but was later cleared for cultivation, haymaking and grazing in the thirteenth century and a permanent farm was established in the early fourteenth century (Amundsen 2007, 233; Stene 2014). There is no evidence of buildings before *c*. AD 1300 that could be related to the organized utilization of the landscape in this area. Possibly, there was a form of mobile activity in the outfield and thus the population was less fixed. The fact that large areas around the medieval shieling do not show traces of iron production, except a single one in a clear association with the shieling, is an indicator of such a use.

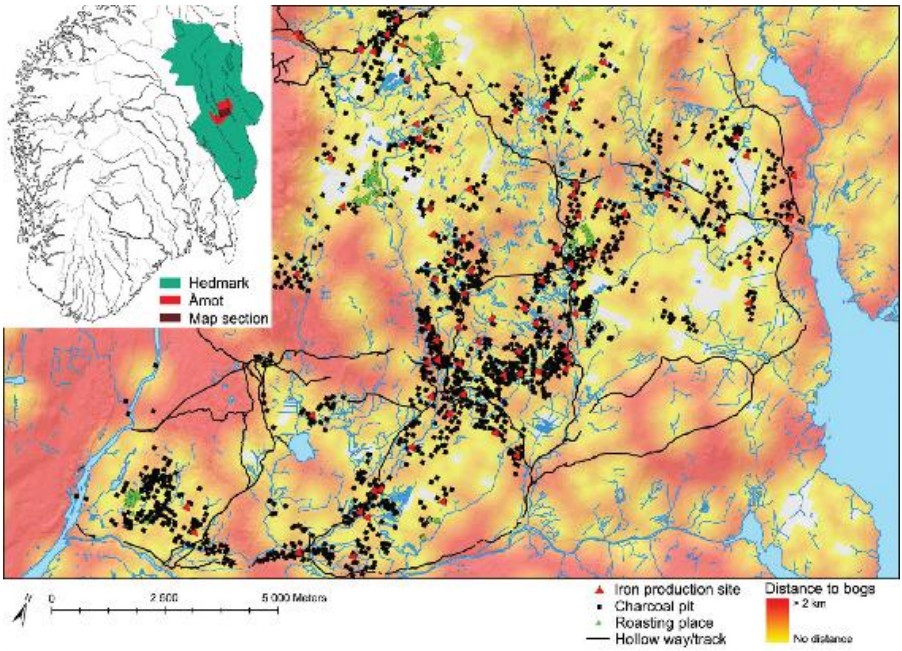

Figure 16.3: The organization of iron production in the landscape in the Gråfjell area (Map base: NMA, Permit number NE12000-150408SAS).

Figure 16.4: The actors in iron production (Drawing by R. Borvik).

There is also a lack of intensive iron production around other farms dated to the medieval period. Still, in three cases one smaller production site was established, which must have a connection with the settlement and activity at the shieling. Even though it is based on a small number of sites, the pattern that is suggested is that the areas around these shielings were not used for large-scale iron production. If this hypothesis is considered plausible, in my opinion the phenomenon must be seen as another indication of the systematic organization of resources and landscapes in the Gråfjell area.

Towards a model

The discussion above clearly points to a rise in settlements at the same time as iron production was established. To reiterate, the traditional agricultural settlement is dominant in the sources, where both small units and larger complexes are represented. In addition, in the Gråfjell area settlements uncovered in forest areas can be found with a possible origin back in the eighth century. Contrary to the agricultural farms in the valley, these settlements indicate the existence of groups of people who did not have an agricultural economy as their primary livelihood. But, these groups were nevertheless closely linked to the agricultural community, as indicated by traces of grazing, finds of bones from domesticated animals and a settlement structure clearly rooted in the agricultural community. A likely interpretation is that these forest farms subsisted in a system partly based on pasture use and partly on producing goods from raw materials sourced in the woods that were traded or exchanged for grain and other essential agricultural products. The spread and extent of these settlements is unknown, but several ^{14}C-dates and a clear connection between the settlements and small production places indicate that this must have been more than an isolated local phenomenon.

Thus, four different settlement structures exist in this region. First, we find the ordinary agricultural farms. Second, the forest farms, where grazing and outfield use were both factored in by rotation. The third group comprised landowners with larger agricultural units, which are often related to major junctions. Finally, we have the chief's farms and the King's farms. The latter could have developed from the older chief's farms, or they could have been established later with the intent to show presence and control economic activity. The King's men

oversaw these farms, while landowners or minor chiefs with direct contact with the regional chiefs or kingdom administered the larger farms. These larger farms were established as autonomous, local and wealthy centers, as evidenced through grave mounds and finds. The structure of iron production also shows that the region was part of a larger system, and that the large powerful farms were central in an alliance-based network where the chiefdom of Solør had sovereignty in the earliest period. At the transition to the new central kingdom where Norway was gathered under one king, the balance of supremacy gradually changed, and the great forests from Våler to Stor-Elvdal (cf. Figure 16.1) became the core area of iron production from *c*. AD 1000 onwards in this region.

This shift towards the north is evidenced in the written sources, which indicate that Solør lost its prominent role, while the northern region's position was strengthened by the construction of markets in Hamar and Stor-Elvdal and by the establishment of residences for the King's men at the same places. As part of the relocation of power, the role of the larger farms altered, particularly with control becoming associated with supervising distribution and exchange in trade.

The actors in iron production must have had their origins in both the agricultural and forest farms (Figure 16.5). The direct relationship to the forest farms has already been mentioned. But in addition to their contribution to the smaller production at the minor sites next to the farms, these people were also an important part of the larger proto-industrial production. Clearly they needed to make goods to exchange for grain and other products. By taking part in regional iron production, together with grazing, they became one economic element in the larger trading network.

The agricultural settlements, known through their place names, probably played a major part in production. These farms constituted the majority of the settlement, and many of the farm units were not fully self-sufficient in grain. Being involved in iron production thus became an important element of their everyday life.

Above these units were large farms with local and semi-regional landowners. They probably had workers who participated, at least to some extent, in the production. But because they acted as executive inspectors of the trading network and of the distribution, their income was obtained mainly through taxes on the distribution. The large

farms became an intermediary in the export of iron to markets and out of the region. This interpretation is based on a regulation from 1358 (RN VI, 483), where the King gave rights to direct trade, which probably was not an old custom, since this right was specified in the text. This implies that a network where local chiefs or lords stood as middlemen between the bloomery smithies and the Crown had to exist, since it is unlikely that the regional chiefs or the King had an organized system to exercise this kind of control at a local level. The landowners at the large farmsteads were thus part of a larger alliance with connections to the power in the region, an alliance that was established during the creation of the settlement and iron production.

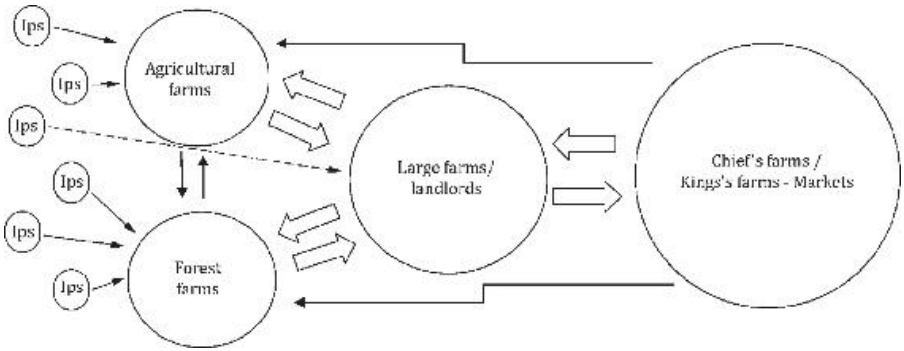

Figure 16.5: Actors in trade and exchange of iron, goods and services in Østerdalen and Solør. Ips = Iron production site (Illustration by B. Rundberget).

At the top of this regional economic system, a regional power could be found that, in line with the group of nobles, only had an indirect influence on production. Written sources indicate that the King controlled trading settlements, such as Koppang and Hamar, and I find it likely that it was by controlling these places that the large revenues must have been earned.

This economic structure where people act on several levels conforms well to the characteristics of proto-industrialization. Economic activity was not rooted in a system where self-sufficiency dominated, but in a partly market-driven society built around a redistributive network with specialized, large-scale iron production as the main factor. All four levels of actors were involved in the activity, where people either played a direct part in production or were indirectly involved in managing and controlling the business from the outside.

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Chapter 17

What did the blacksmiths do in Swedish towns? Some new results

Hans Andersson

In Sweden, as in the rest of Western Europe, the 12th and 13th centuries constituted an important moment in state formation. International commerce grew rapidly, and Sweden became an integral part of Europe. In this development iron played a crucial role. It was of such significance that kings and other authorities strove to gain and preserve their control over iron production.

In this paper I will look into the role in iron production of towns and their blacksmiths, whereas the role of the merchants in bringing the iron out on to the world market is not considered in this study. There were blacksmiths in all towns. They have primarily been seen as makers of local iron products, which is of course quite right. But there is another field of production that has not been discussed so much: their participation in primary forging (in Swedish *primärsmide*), that is to say, the last refinery stage of the iron bloom, before it could be used for forging tools and other objects.

All this has been studied in a project called *Iron and State Formation in Sweden 1150–1350*, published in Swedish in 2010 (Berglund 2010). In this project, I have concentrated on the role of towns both as intermediaries in trade and as participants in the iron-making process (Andersson 2010). This study has since been followed up by an archaeometallurgical study of slag from Visby and Lödöse – two important towns in medieval Sweden – undertaken by the Geoarchaeological Laboratory (GAL) of the Swedish National Heritage

Board (Grandin *et al.* 2012).

Background

Urbanisation was not a medieval innovation since it had been going on, in different forms, since prehistoric times. However, in the 13th century towns developed with special royal economic, social and legal privileges in Sweden. A considerable number of them were situated around Lake Mälaren. Nearly all functioned more or less as intermediaries between the mountain ore districts of Bergslagen, north of Mälaren, and the export merchants in Stockholm. However, chartered towns involved in iron processing were also found in other parts of the country, especially in the south.

Iron has been produced in many parts of Sweden since prehistoric times. It was a commodity that was coveted and necessary for progress in many parts of society. To begin with, bog or lake ore and red earth were used in bloomery furnaces. At least from the middle of the 12th century, and perhaps earlier (Segerström *et al.* 2010, 204–217), a new technique – the blast furnace, which made the extraction of iron from rocks possible – was introduced in the Bergslagen region north of Lake Mälaren (Figure 17.1). As a consequence, iron production increased tremendously, and the requirements for industrial growth were shaped. Bloomery iron-making lost most of its significance during the late Middle Ages, but it still persisted to some extent until the 19th century.

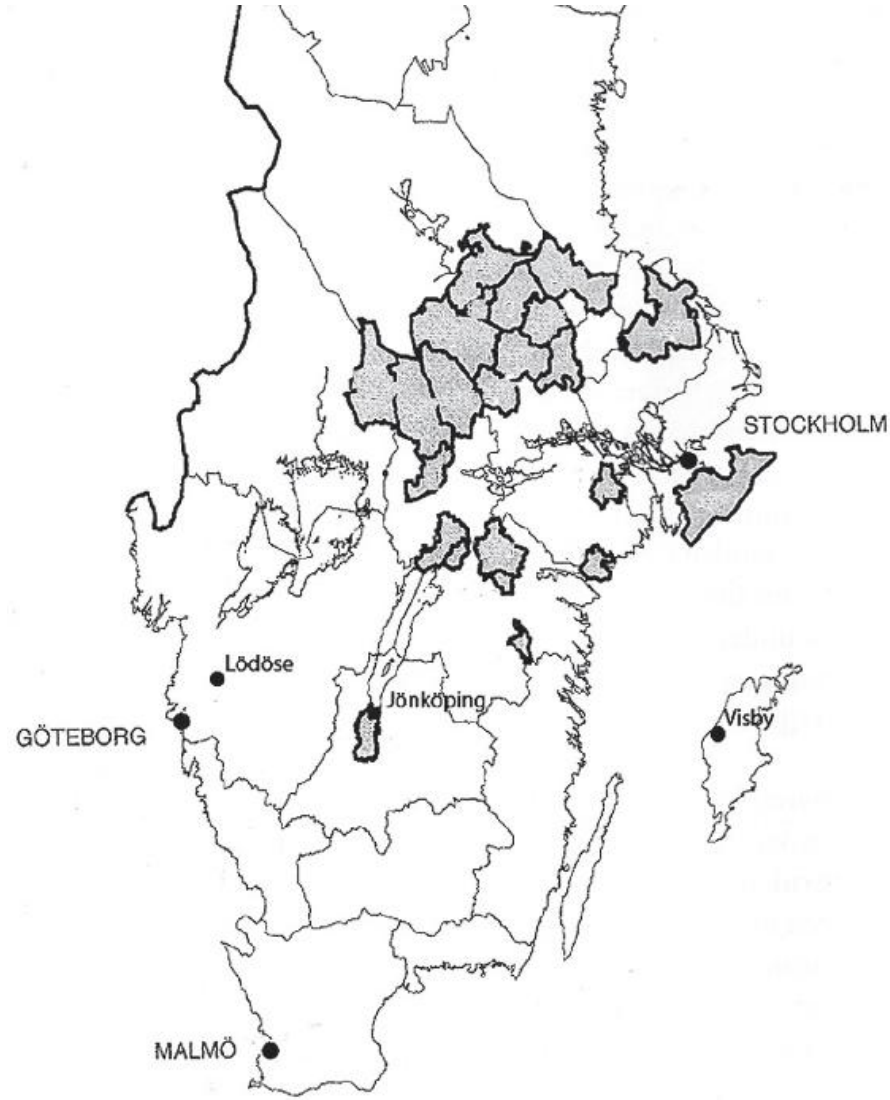

Figure 17.1: The mine areas of medieval Sweden. The map also includes the towns discussed in the paper. (Based on Skyllberg 2001, 162).

Nonetheless, it is evident that the production of bloomery iron had its heyday in some regions during the 12th and 13th centuries; this was especially true in Småland, the southernmost province of medieval Sweden. Although it is difficult to arrive at any numbers to characterise the scale of production, it is evident from archaeological investigations undertaken over the last few decades that this activity took place on a sufficient scale to be called *industrial* or at least *proto*-industrial.

The written source material is very scarce, if not totally missing for the periods in question, so we have to rely on archaeological material and, as in this paper, slag. This category of material has been chosen because it can reveal the kind of iron processing that took place in the towns. The iron slag found in towns can be of two different kinds. It may originate from primary forging or from artefact smithing, which is sometimes called *secondary smithing* or forging (in Swedish *sekundärsmide*). Gert Magnusson's now classic schematic representation of the bloomery process illustrates very well the stages of production (Figure 17.2). Refining iron from blast furnaces was a different process to primary smithing, and was carried out near the furnaces. It is not so easy to differentiate the slag from primary and secondary smithing, but slag from secondary smithing, that is to say, artefact smithing, mostly has a more complex structure (Grandin *et al.* 2012).

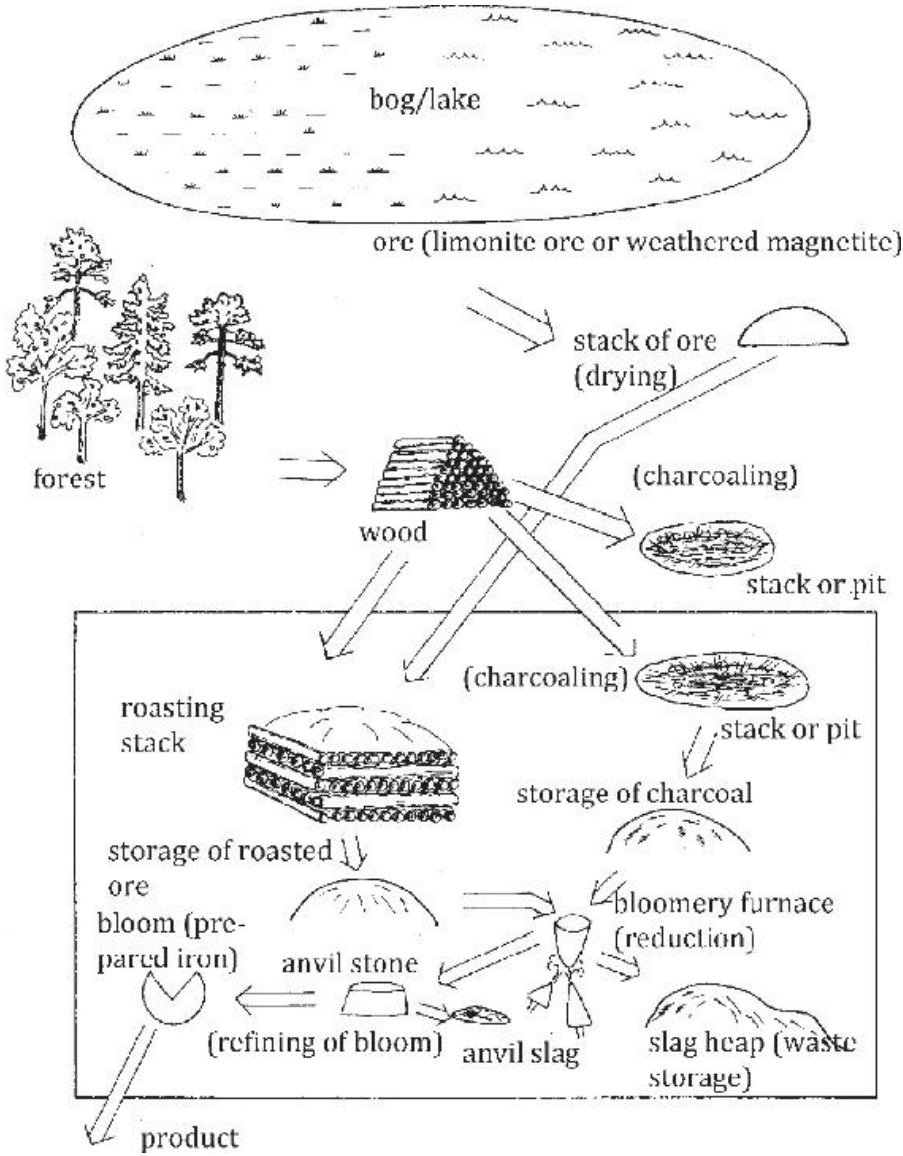

Figure 17.2: Schematic illustration of the bloomery process (Magnusson 1986, 18).

Of course, there are problems of source criticism regarding slag found in towns. It is sometimes difficult to date parts of this material, because the excavation context in which it is found varies from site to site. Furthermore slag has not always been a popular source material amongst archaeologists. It has been regarded as quite uninteresting and overly bulky when it comes to storage in museums, such that much material has since disappeared. This is one reason why it is so difficult to quantify the scale of production in towns.

Three towns

The paper is based on a study of three different towns in Sweden: Jönköping, Visby on the island of Gotland and Lödöse in West Sweden.

Jönköping

Jönköping is located at the south end of Lake Vättern, with roads towards the west, east and south, and which must have played a great role for the development of the town. The first town privileges, the oldest known urban charters in Sweden, date to 1284 and 1288. A Franciscan convent was founded in 1283. The urbanisation of Jönköping thus took place in the second half of the 13th century (Arbman and Norborg 1963; Areslätt 1984).

Later archaeological investigations have provided many new and interesting results. They have especially been concentrated around the western exit road of the town (Figure 17.3). In one of the excavations (Lundströms plats) three areas with remains of blacksmith's workshops were found (Figure 17.4). Within these areas slag, mill scale and weld splatter were recorded. Radiocarbon dates are largely grouped in the last half of the 13th century, though one of the areas could be somewhat older. A significant quantity of slag was used as filling for the exit road (Claesson 1993; Åstrand manuskript), and scientific investigations performed by Lena Grandin, Riksantikvarieämbetet, GAL, Uppsala, show that this relates to bloomery iron, and that 'there are signs that the iron which was used in the forge had to be processed, for example be purged from slag, before it could be forged into iron billets or half-worked melts' (translation from the Swedish original) (Grandin 2008, 59)

Both bloomery and later blast furnaces have been identified

around Jönköping (Figure 17.5), with raw materials to be found in the town's extensive hinterland (Kallerskog 2009). A significant number of bloomery furnaces have been investigated in the region since the 1970s, painting a picture of a large-scale and uniform activity. Linnéa Kallerskog, a medieval archaeologist from the regional museum in Jönköping, has concluded that the melting places were very uniform in their design and organisation, and also had similar furnace constructions. Red earth was used as raw material, and pine as fuel. Slag was separated from the bloom by slag-tapping (i.e. horizontal slag separation). The bloomery iron was probably transported from the furnace localities to – in this case – Jönköping for further processing and for sale. The dating of the bloomery furnaces ranges from the end of the 10th to the 13th century, but the charcoal pits that are part of the production landscape extend to the 15th century, with the majority in the period between the 11th and 13th centuries.

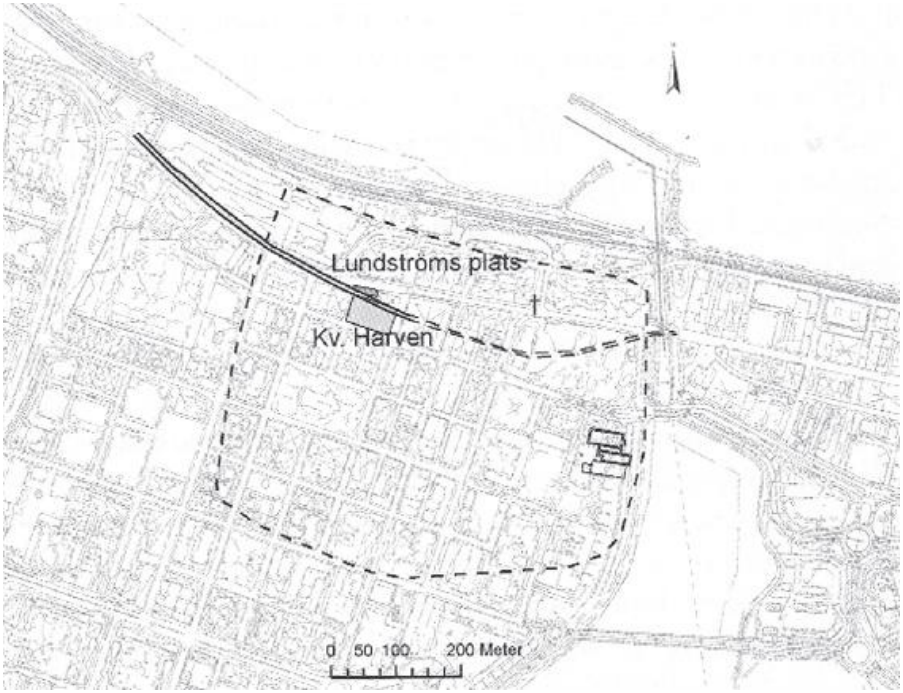

Figure 17.3: Medieval Jönköping. The areas discussed in the paper are situated in the north-western part of the town. (Map by L. Kallerskog, Andersson 2010, 71).

As we have seen, the forges of the 13th century were gathered in the western part of the town. There are significant indications that iron processing played an important part in the urbanisation of Jönköping (Kallerskog 2009). When bloomery production diminished in the region around Jönköping, the primary forging in Jönköping also disappeared (probably in the 14th century). Still, the knowledge of iron crafts did not disappear. Jönköping became a manufacturing town and an industrial centre, which has itself been archaeologically investigated. Between the 17th century and today the manufacture of weapons has been one of the region's best-known industries (Pettersson 2010).

To summarise: what we learn from the example of Jönköping is that the medieval blacksmiths of the town were divided into different categories, or at least that they were engaged in different parts of the iron processing: primary and secondary forging. The issue is whether Jönköping represents a special case, or if similar patterns can be discerned in other towns. In order to address this question, I will discuss two other important towns: *Visby* on the island of Gotland, and *Lödöse* in West Sweden, where new analyses have been presented (Grandin *et al.* 2012).

Figure 17.4: Jönköping, 'Store gate' (The Main Street) with a road surface of slag to the right (Photo by R. Bindberg, Jönköpings läns museum).

Visby

The general history of Visby is well known. Its strategic situation in the Baltic resulted in vigorous development between the 12th century and the first half of the 14th. The town became one of the most important in the region, with extensive trade contacts to the east and the south.

There are surprisingly thick layers of slag in some parts of the town (Figure 17.4). John Nihlén, who made many important contributions to the history of Swedish medieval iron, published some results back in 1927 (Nihlén 1927; Nydolf 2005). He dated the slag layers to the end of the 12th century and the 13th century, but Nihlén thought that it originated from secondary/manufacture forging, rather than from primary forging. During recent decades our knowledge of the material has increased. Two rather large areas with forging remains have now been investigated, in addition to those other minor spots with significant numbers of finds. Research on these sites has resulted in different suggestions regarding the nature of the iron processing that went on in Visby.

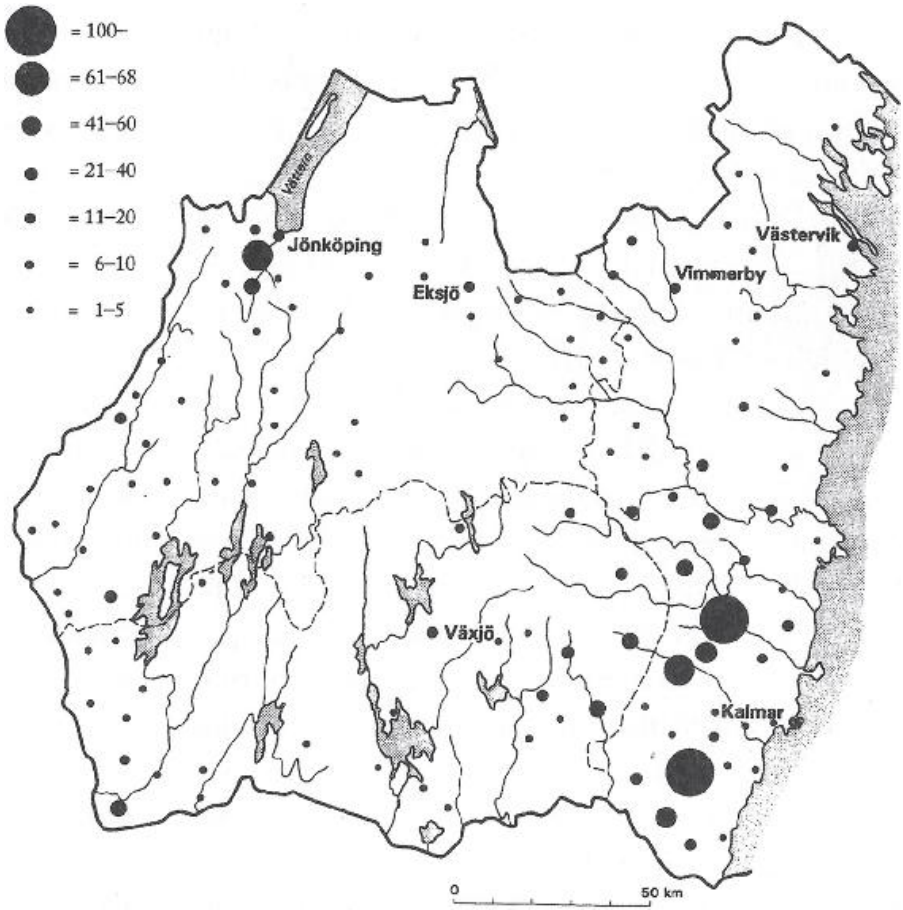

Figure 17.5: Bloomery furnaces in Småland (Rubensson 2000, 268).

Based on finds made after Nihlén's studies, another researcher, N. G. Nydolf, has posited the existence of a handicraft area situated on the verge of the growing town at one of the entrance roads, in which iron was processed on an industrial scale. Together with finds found after Nihlén, Nydolf thus thinks that there were two kinds of iron processing, the already mentioned primary iron processing, which took place on an industrial scale, and secondary/manufacture iron-forging for household/local needs (Nydolf 2005). Gert Magnusson, in contrast, has interpreted the slag finds as the remains of weapon production (i.e. secondary/manufacture processing) on a large scale (Magnusson 2005).

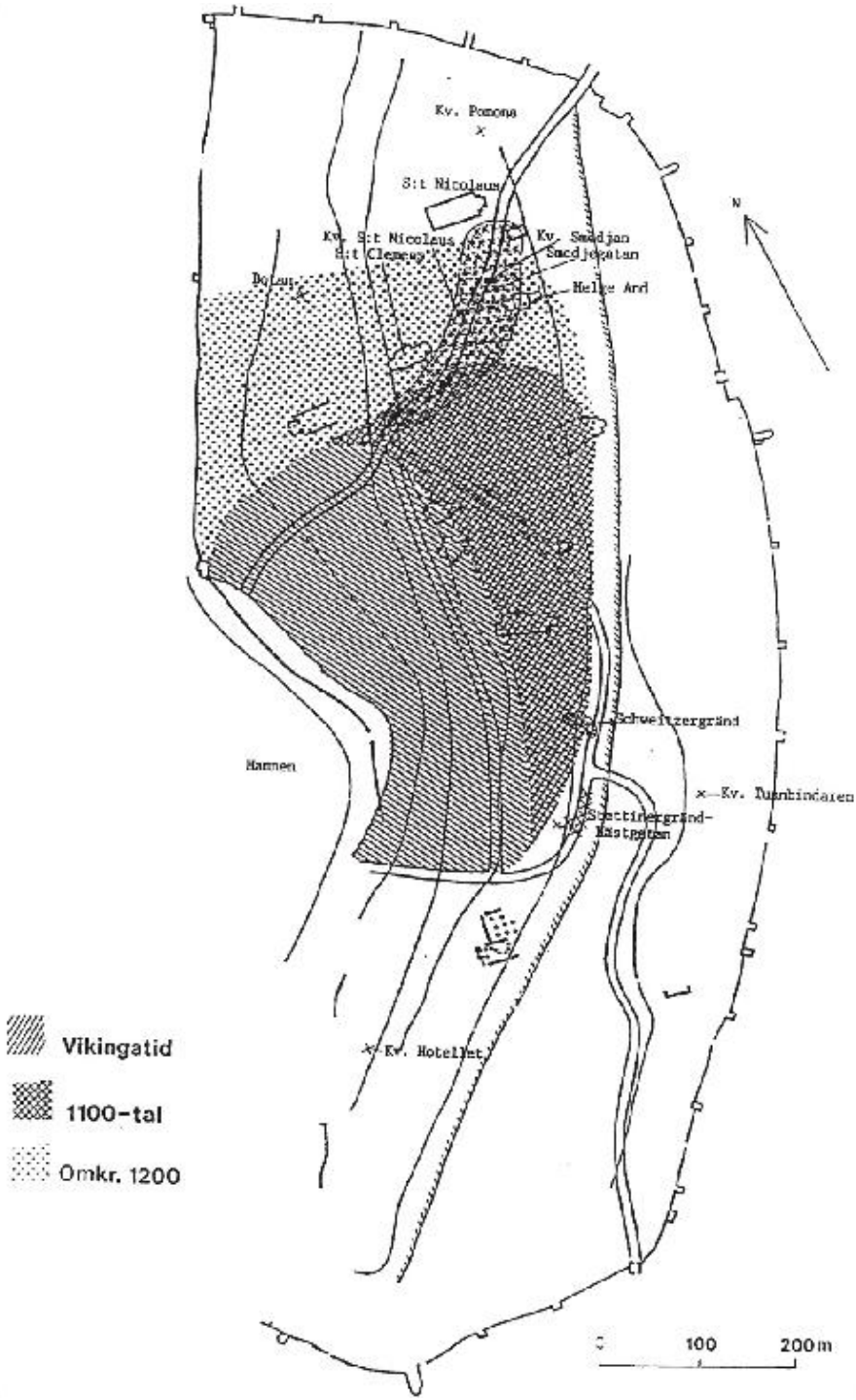

Figure 17.6: Visby. Finds from iron and bronze smithing. The different grey markings show the extent of the town in different periods. The x-points mark finds of slag. Note

especially the area around Smedjegatan (The Street of the Blacksmiths), with its great concentrations of slag (Nydolf 2005, 27).

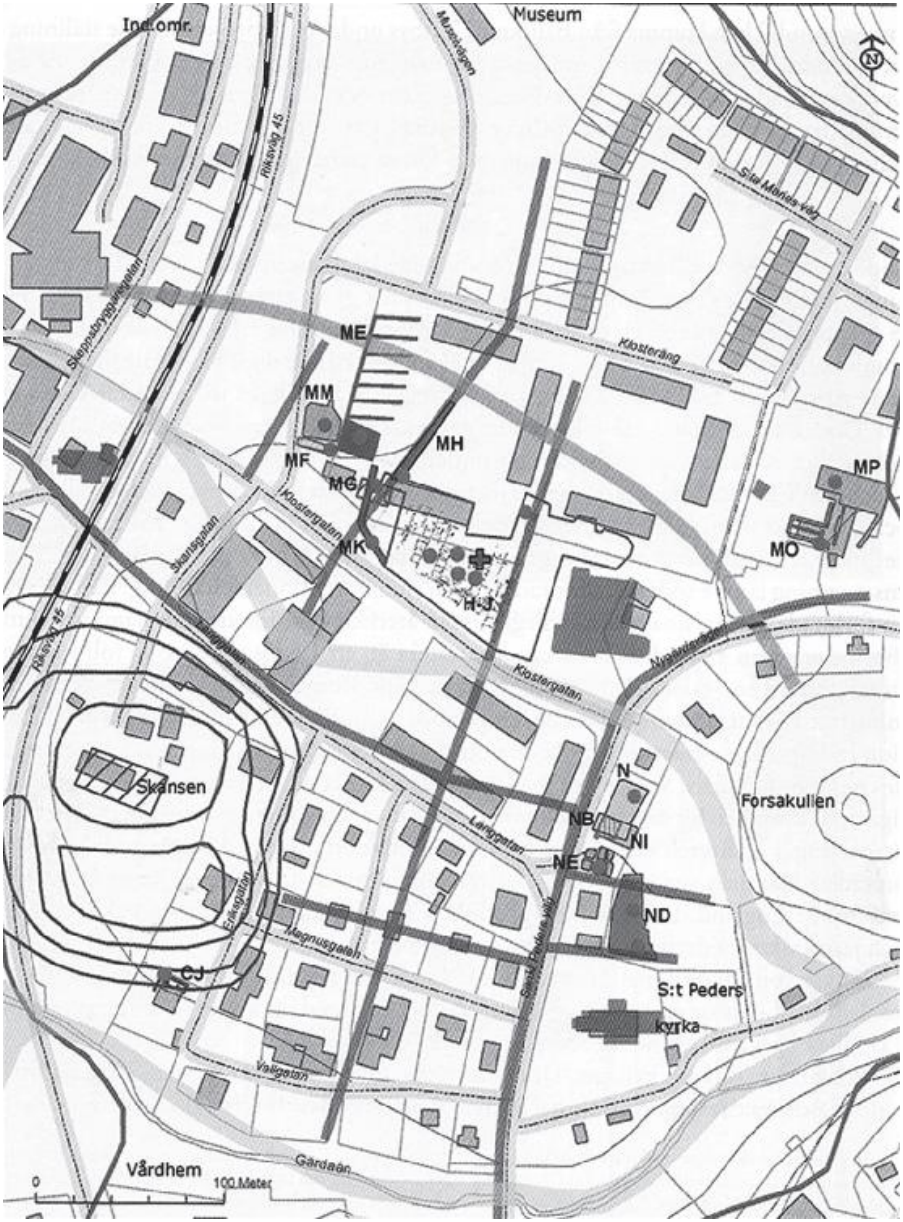

Figure 17.7: Lödöse. The three main areas with smithing, marked with dots on the plan. The cross shows the area of minting around 1300. The main medieval street grid is drawn in dark grey and the river arms in light grey. (Map by S. Jeffrey and K. Kåhre, Lödöse museum, in Andersson 2010, 94).

There is an intriguing find from Visby of a piece of rock ore from Utö in the archipelago of Stockholm, which Nihlén mentions in his book and which has played a role in determining the role of Utö ore in Visby and the age of the Utö ore extraction. I will return to these new investigations in Visby after having presented Lödöse and the research situation there.

Lödöse

Lödöse was a very important Swedish town between the 12th and 14th centuries. It was situated on the Göta Älv (Göta River) and was the only Swedish town in the west which had contact with the North Sea. The town functioned as an important export- and import-harbour until the end of the 15th century, when Nya Lödöse (New Lödöse) was founded further south, within the borders of today's Göteborg. In the middle of the 17th century the town lost its privileges and became an ordinary farming village (Harlitz 2010).

Since Lödöse has been spared later urban development, there have been good conditions for archaeological investigations. A large part of the former town area was excavated first in the late 1910s, and then in the years since the 1960s (af Ugglas 1931; Carlsson and Ekre 1980; Carlsson 2007). Amongst the archaeological material, there is a considerable quantity of slag, as well as smithies. These have been found primarily in three areas, in different parts of the northern and eastern outskirts of the town (Andersson 2010).

Figure 17.8: Lödöse. An excavated forge in the northern part of the medieval town. (Photo by R. Ekre, Lödöse museum).

The interesting questions, which remained to be answered for both Visby and Lödöse after my paper in 2011 (Andersson 2011), were whether there were the same traces of primary forging as in Jönköping, and whether it is possible to determine the source of the iron. A grant from the Royal Swedish Academy of Letters, History and Antiquities provided the opportunity to further explore this issue; the study was undertaken by the Geoarchaeological Laboratory (Grandin *et al.* 2012).

In this study, a selection of slag from Visby (12th–13th century) and Lödöse (12th– 14th century) was examined (Grandin *et al.* 2012: 12–17). In a preliminary study, large quantities of slag were examined, and those which potentially belonged to primary smithing were selected for further analyses. Material classified as the residue of secondary forging was rejected, since it did not help in answering the question of origin. The slag examined included material from archaeological investigations in both towns. It of course represents only a small component of all slag finds that have been investigated, but the study nonetheless provided a clear answer on one point, and results that may serve as a starting point for further discussion on the other. It is unfortunate that the Visby material excavated by Nihlén in the 1920s could not be found, and has obviously not been preserved. Nonetheless, in principle the Visby material that was examined came from the same area as Nihlén's excavations.

The slag from Visby yielded a clear result. It originates from bloomery iron, and was the waste product from primary forging. This means that the smithies received iron originally produced from lake or bog ore, or from red earth, rather than from rock ore. A single isolated find of rock ore from Utö (see above) must relate to a different chronological context. The slag from Lödöse also originated in primary smithing. Some pieces could have been the residues of secondary smithing/artefact smithing, and smithies were probably used for both processes.

The next question relates to the geographical provenance of the iron, and this was much harder to answer. By comparing trace elements in the slag with a reference collection of ore samples and slag from previously analysed bloomery sites (mainly in southern and central Sweden), the investigators tried to ascertain where the iron could have come from. With regard to the location of Visby – centrally

positioned in the Baltic – there is of course the possibility that iron from the eastern Baltic was imported, and a number of other gaps remain to be filled. The situations is thus complex, but the conclusion is that there is a certain tendency for a 'dominance of suppliers from the western part of Sweden for Lödöse, and from the eastern part for Visby' (Grandin *et al.* 2012). In sum, it seems that the smithies in Visby and Lödöse acquired their iron from different regions. The reason for this is an interesting subject for further study.

But which actors were behind the development of the iron industry, especially during the 13th century? Jönköping provides us with some clues. As already mentioned, the town received its first charter in 1288, and one of its regulations was intended to concentrate all trade in the town. Jönköping represents part of a rather strong drive towards urbanisation in this period. Together with organising the state, urbanisation was a royal policy, while we know that the king also tried to mark his influence in the mountain mines (Pettersson Jensen 2013, 236–240). According to Kallerskog – and I agree – the king had also, in the case of Jönköping, tried to control and rule the organisation behind the production of bloomery iron (Kallerskog 2009). It was a long time before it became clear that the future lay in iron produced in blast furnaces, so it was of interest to control both processes.

Conclusions

My central question has been what role the towns played in the iron-production process, with some digressions relating to the materials with which urban blacksmiths worked. I have given three examples from the southern part of medieval Sweden, dating to the 13th and 14th centuries. In these cases the blacksmiths of Jönköping, Visby and Lödöse undertook the primary smithing. When we are discussing the 13th and 14th centuries and perhaps earlier centuries, we should probably try to distinguish between blacksmiths who were part of the bloomery process and those who were engaged in manufacturing. Towns appeared to work exclusively with iron originally extracted from ores from lakes, bogs or red earth. The identity of the sources from which the towns acquired their iron ahead of final purification are open to discussion, but the tendency is for most of the iron to originate in areas relatively close to the towns. Rock ore was not a key

source of iron in this part of Sweden before the late 14th or the beginning of the 15th century.

The movement of iron processing into the towns must be seen in a broader context, within which the Swedish state was developing, and it was necessary for the king to wrest and maintain control of an important resource. This was more easily achieved in the towns than in the countryside. Jönköping evidently shows that bloomery iron, at least up to the 14th century, was as important as blast iron.

The blacksmiths in the town were one part of a greater network of actors, in which the leading men in the state also had their roles. It is interesting to note that the situating of ironworking within a political context was not something limited to this particular period. Forging persists to the present day, and it is instructive that one major product in the Jönköping area during the 16th and 17th centuries was weaponry manufactured for the Swedish army.

Acknowledgements

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Chapter 18

The Iron Age blacksmith, simply a craftsman?

Roger Jørgensen

Norway's three northernmost counties, Nordland, Troms and Finnmark, constitute North Norway, where two peoples lived side by side but also geographically separated during the period of time in focus here; the Late Iron Age (AD 600–1050). Germanic people, partly living by farming and stock keeping, settled the outermost coastal areas of Nordland and Troms. The Sami are believed also to have been present in these areas but most Sami foragers lived in the inner fiord systems, in the interior and in Finnmark.

Graves are an important Iron Age category of finds, especially so when it comes to blacksmith's tools, of which all have been found in graves; therefore, burial traditions are crucial to our knowledge of this period. Our understanding of the Sami and the Germanic peoples is influenced by their practice of different burial traditions. Most Sami Iron Age graves are from Finnmark but they are almost nonexistent in parts of Nordland and Troms where the Germanic settlements dominate. Thus our knowledge of the Sami Iron Age presence in these areas is particularly incomplete (Figure 18.1).

The Norwegian Iron Age blacksmith has usually been considered to be a socially powerful man of high status (Hagen 1967, 215; Sjøvold 1974, 306) but other statuses related to the blacksmith's craft have not been much emphasized in traditional archaeological literature. Archaeological and ethnoarchaeological studies have shown that such statuses may have influenced his social standing as much as

his craftsman-like skills (Saltman *et al.* 1986; Barndon 1992; 2001; 2004; Herbert 1993; Rijal 1998; Haaland *et al.* 2002; Haaland 2004). This paper will explore the craft of the blacksmiths in northern Norway during the Late Iron Age: was he a smith primarily or was he involved in iron production? Did he exclusively work with iron or did he work soft metals as well? What was the blacksmith's social standing?

Some of the above mentioned studies emphasize magic and ethnicity as being important in determining who practiced blacksmithing. Any magical connotation to the craft of the blacksmith is likely to have had an impact on his social standing. Also, in a land of two peoples, was ethnicity a factor regulating who worked as a blacksmith? Ethnicity is not easily recognizable in the archaeological material and thus it can be a dubious category to employ. My study is primarily based on archaeological material, but I have also made use of written evidence, like the Nordic sagas and post-medieval sources to get a better understanding of the non-material aspects of the role of the blacksmith.

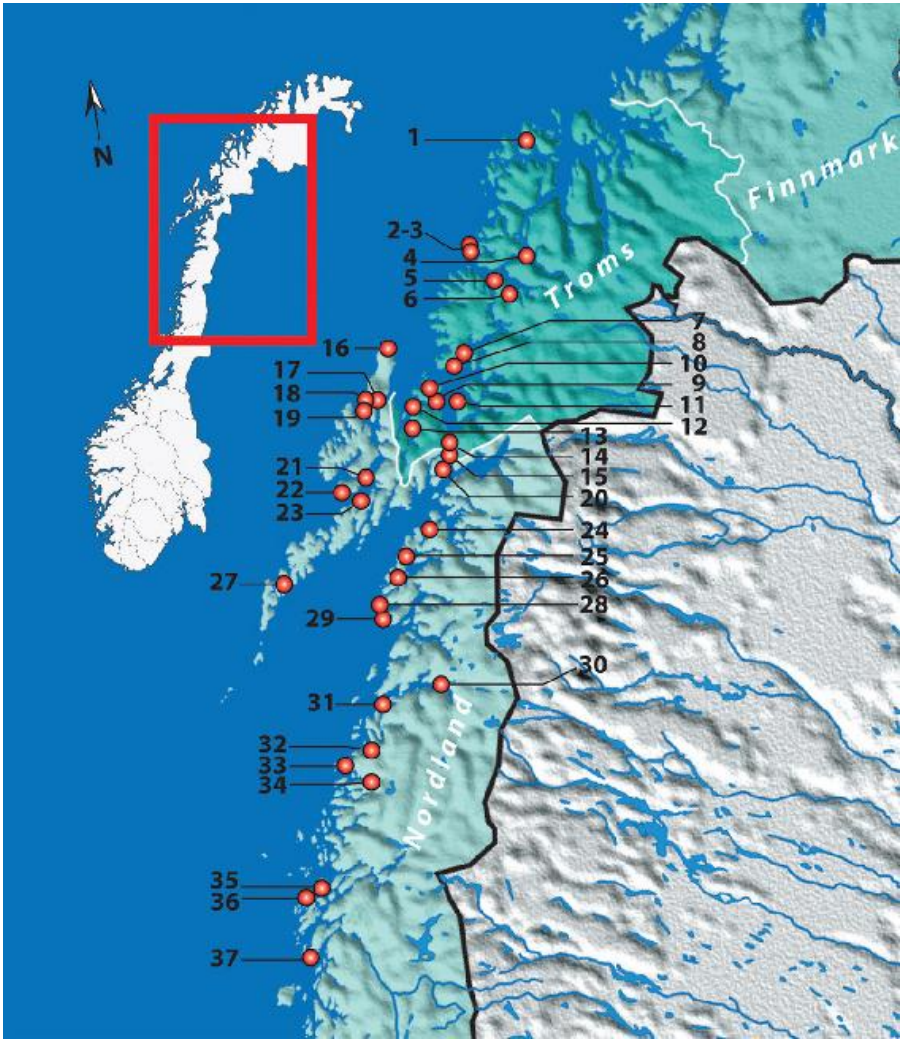

Figure 18.1: Graves with blacksmith's tools (Graphics by A. Icagic, Tromsø University Museum).

Prelude to a new craft

Few sites with iron dating to the period 500 BC to AD 200 have been found in North Norway, but there is a pronounced growth in the number of iron objects found at sites dated from approximately AD 300. Some of the oldest iron objects are found at Kjelmøy in eastern Finnmark, dated to approximately 600 BC (Olsen 1994, 132). There is no sign that iron was produced or forged at the site since no slag was found, but it was clearly worked in the vicinity as it was adapted to fit locally produced bone tools (Solberg 1909, 39–45, figs 35, 79; 1911, 351). A fragment of a mold indicates the smelting of metal, probably bronze or copper, and thus the knowledge of and ability to modify metal objects. People living at Kjelmøy were hunters and gatherers with strong cultural contacts with iron using and iron producing cultures in the south and the east, namely, in Finland and Russia. While the county of Finnmark and the interior of Nordland and Troms were settled by foragers, the outermost coast of the two latter counties was settled by stock keepers and farmers throughout the Iron Age. The oldest dated iron in this milieu is from Hemmestad in Kvæfjord Municipality where iron production is documented as early as 500 BC (Jørgensen 2010).

Consequently, iron seems to have been present among both foragers and stock keepers and farmers throughout North Norway from approximately 500 BC. However, only three iron production sites have been found in this area, two dated to the Iron Age and one to the 1200s (Jørgensen 2010, 2011). The Iron Age production sites are both located in the Germanic core areas, thus the metal seems at least occasionally to have been produced in this milieu. The documentation of the only the two Iron Age production sites has indicated that iron production was small in North Norway and that it could not have satisfied the local demand.

The limited iron production that took place must have been for local consumption and the producers would have had the knowledge and tools to form raw metal into whatever object was needed. Therefore, iron has surely been worked and modified since the first metal was produced locally, but the practice of smithing may go back to the time when the first copper or bronze objects were introduced to the northern settlements.

However, there are no blacksmith's tools dating to the Early Iron Age (500 BC–AD 600). All Iron Age blacksmith's tools are from the Late Iron Age, that is, from AD 600 to 1050; a study based on archaeological finds documenting the work of the blacksmith would thus have to focus on this period.

Generally, blacksmith's tools have hardly changed over the last 1000 years and the only way of dating them is by context. With a few exceptions, blacksmith's tools with datable contexts have been found in graves; this means that burial traditions have heavily influenced our interpretations. In all of North Norway, there are 37 graves with blacksmith tools (cf. Figure 18.1) a total of 113 such tools have been found in them (Jørgensen 2012, 8–9) (Figure 18.2). These finds are all located in the core settlement area of the Germanic farmers and stock keepers along the outermost coast of Nordland and Troms counties. No graves with blacksmith's tools have been found in the interior of these counties or in Finnmark, areas that in the Iron Age were dominated by Sami foragers. However, finds of iron and slag indicate that iron was present in these areas and used by the Sami (Hedman 1993, 165–166; Olsen 1994, 132; Liedgren and Johansson 2005, 290). Their burial customs may be one reason why no datable blacksmith tools have been found. Thus, a tale about the prehistoric blacksmith in North Norway will inevitably be about a blacksmith working in a Germanic milieu but, as will be discussed later, not necessarily about blacksmiths of Germanic ethnicity.

No.	Farm	Municipality	County	Museum no.	Blacksmith	Weapons, bridles, arrowheads ( )
1	Korsnes	Karlsøy	Troms	Ts. 2519-2525	11	1
2	Tussøy	Tromsø	Troms	Ts. 2639 a-g	2	7(6)
3	Tussøy	Tromsø	Troms	Ts. 6749 a	1	
4	Balsnes	Tromsø	Troms	Ts. 874-882	3	6(3)
5	Engenes	Tromsø	Troms	Ts. 528-535	2	3
6	Årnes	Lenvik	Troms	Ts. 7364, Ts. 7367	3	1
7	Sletten	Tranøy	Troms	Ts. 975-983	6	Bridle 3
8	Lekangen	Tranøy	Troms	Ts. 959-93	1	1
9	Sundsvoll	Bjarkøy	Troms	C. 5494-5505	3	13
10	Austnes	Bjarkøy	Troms	Ts. 907-915	2	1
11	Nord-Rollnes	Ibestad	Troms	Ts. 2276-2288	7	2
12	Ytre Elgsnes	Harstad	Troms	Ts. 4762 a-w	9	
13	Borkenes	Kvæfjord	Troms	Ts. 2898-2911	3	4
14	Haukebø	Harstad	Troms	Ts. 4124 a-d	2	2
15	Haukebø	Harstad	Troms	Ts. 10817 a-n	4	Bridle 2
16	Bleik	Andøy	Nordland	Ts. 2923-2924	2	4
17	Bø	Andøy	Nordland	Ts. 374-377	3	
18	Lanesskogen	Andøy	Nordland	Ts. 1762	2	2
19	Sørmela	Andøy	Nordland	Ts. 4178 a-f	2	2
20	Steinsvik	Tjeldsund	Nordland	C. 20317	3	3
21	Risøya	Hadsel	Nordland	Ts. 2954-2984	8	Bridle 5
22	Hadsel	Hadsel	Nordland	B. 3181 a-[illegible]	2	4
23	Husby	Hadsel	Nordland	Ts. 2918	1	2
24	Tannøy	Hamarøy	Nordland	Ts. 1225	3	2
25	Nes	Hamarøy	Nordland	B. 5161 a-q	3	4
26	Myklebostad	Steigen	Nordland	Ts. 1811	2	2
27	Kilen	Hakstad	Nordland	Ts. 4160 a-m	2	2(?)
28	Lund	Steigen	Nordland	Ts. 1168-1181	6	
29	Tro	Steigen	Nordland	Ts. 3027	1	2
30	Erikstad	Fauske	Nordland	Ts. 1722	1	Bridle 4
31	Seines	Bodø	Nordland	Ts. 1466-1467	2	2
32	Sørfinnset	Gildeskål	Nordland	Ts. 3654 a-h	1	Bridle 2
33	Øysund	Meløy	Nordland	Ts. 1641-1642	2	3
34	Haugvik	Meløy	Nordland	Ts. 3496 a-i	1	4
35	Alsøy	Nesna	Nordland	C. 5617-5619	3	4
36	Dønnes	Dønna	Nordland	T. 11906 a-k	2	4
37	Tjøtta	Alstadhaug	Nordland	T. 15139 a-i	2	5

Figure 18.2: Graves with blacksmith's tools, weapons, hunting and horse equipment.

The blacksmith's tools

Today, a blacksmith is defined as 'a person who makes and repairs things in iron' while the smith is a 'worker in metal' (Oxford Dictionaries Online, 2013). The scope of the work conducted by the prehistoric, north Norwegian blacksmith is likely to have been more than this as he worked a wide variety of materials. The old Norse term *smið*, meaning smith, implied a person who also worked with wood and bone (Blindheim 1963, 36; Jansson 1981, 162) and in 26 of the 37 graves with blacksmith tools, 'all-purpose tools' used for working such materials were found like knives, axes, augers, chisels, whetstones, and so on. Apart from iron, wood and bone, the tools indicate that blacksmiths may also have worked metals like copper, tin, bronze, silver and gold.

Blacksmith tools are the most numerous category of find revealing the presence and the work of a blacksmith. To conduct his work, the blacksmith would, apart from his tools, need a place to work. Few smithies have been found in North Norway and only one, at the Migration Period (400–600) farm of Greipstad in Tromsø Municipality, has been dated to the Iron Age.

However, forge-stones (Figure 18.3) indirectly reveal the presence of smithies. Forge-stones may have had no other use than in a smithy and 23 such stones have been found in North Norway. Only eight can definitely be dated to the Iron Age and thus we have archaeological evidence of nine Iron Age hearths and smithies. The archaeological material is in its nature fragmentary and incomplete, and the small number of registered smithies and forge-stones by no means reflects the scope the craft of blacksmithing may once have had. Therefore, I will take a closer look at some of the tools that were vital for the work of the blacksmith. I have chosen here to examine three categories to see what light they might shed on the work of the blacksmith: hammers, forging tongs and anvils.

Figure 18.3: Forge-stone from Lund in Steigen (Photo by M. Karlstad, Tromsø University Museum).

Hammers

A hammer is an all-purpose tool and, apart from being a major tool for blacksmithing, it is also a primary tool in carpentry and other crafts. However, hammers are often found together with other kinds of smithing tools, indicating that they have been used for smithing purposes. In all, 24 hammers have been found in North Norway. Their range of use is sorted according to weight and shape, and they can roughly be divided into two groups according to shape and function. Type I is a riveting hammer, also called a 'thinning' or a 'stretching' hammer; this constitutes the great majority (21) of hammers, and both these terms relate to the use of the peen for thinning and stretching metal. They are all rather on the light side as 50% of them weigh less than 200 g. Apart from use for thinning and stretching purposes, they are likely to have been used for working small objects and soft metals (Bøckman 2007, 42). The other type, the Type II hammers (Figure 18.4) are characterized by having the shaft-hole near the butt. They are sledge-like tools weighing between 390 g and 1 kg, used for heavy blacksmithing and only three of these have been found (Figure 18.5).

Figure 18.4: 'Sledge hammer' from Korsnes in Karlsøy (Photo by M. Karlstad, Tromsø University Museum).

Working large iron objects like a bloom fresh from the iron extraction furnace would have required the use of a large and heavy hammer. No such hammer has been found but experiments with iron production have demonstrated that a wooden mallet may have been useful in hammering and shaping the red hot bloom immediately after extraction from the furnace. Organic objects are rarely preserved; thus it is possible that the blacksmiths may have been more involved in iron production than indicated by the grave finds.

Forging tongs

The purpose of a forging tong is to hold on to an object and to provide added distance from the great heat of the hearth and the hot object being forged (Figure 18.6). The length of the forging tongs has two main functions: creating distance from the heat and keeping a firm grip by using the leverage effect. Forging tongs are divided into two main groups according to their length (Grieg 1920, 39; Petersen 1951, 85) of longer and shorter than 30 cm.

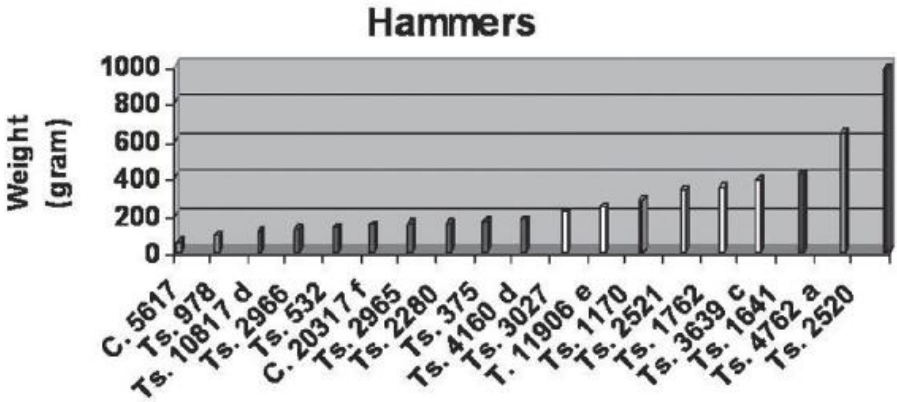

Figure 18.5: The weight of north Norwegian hammers.

Figure 18.6: Forging tong from Nord-Rollnes in Ibestad (Photo by M. Karlstad, Tromsø University Museum).

Information about shape and length is available for only 14 of the 16 forging tongs found in North Norway. Their length is evenly spread between 20 cm and 76 cm although the majority (64%) are characterized as long. Based on the shape of the jaws and their length, the forging tongs were probably used in a variety of smithing tasks, indicating that Northern Norwegian blacksmiths worked on a wide variety of ferrous and non-ferrous metals, and on large as well as small objects.

Anvils

Six anvils have been found in North Norway, divided in two main types: with a square striking head and with the striking head extended with a horn to one side (Figure 18.7). Compared with modern anvils, which weigh approximately 80 kg (Bjørlykke [1949] 1966, 65), the prehistoric ones are very small. The size of these six anvils varies (Figure 18.8) and the smallest anvil has a striking face measuring 2.5 × 2.7 cm and weighs only 105 g, while the largest, weighing 1100 g, has a striking face of 8 × 8 cm extended in a 7 cm long horn. Due to their small size, they would have been quite unsuitable for any heavy blacksmithing and their primary use is likely to have been for repairing and modifying minor iron objects or working soft metals.

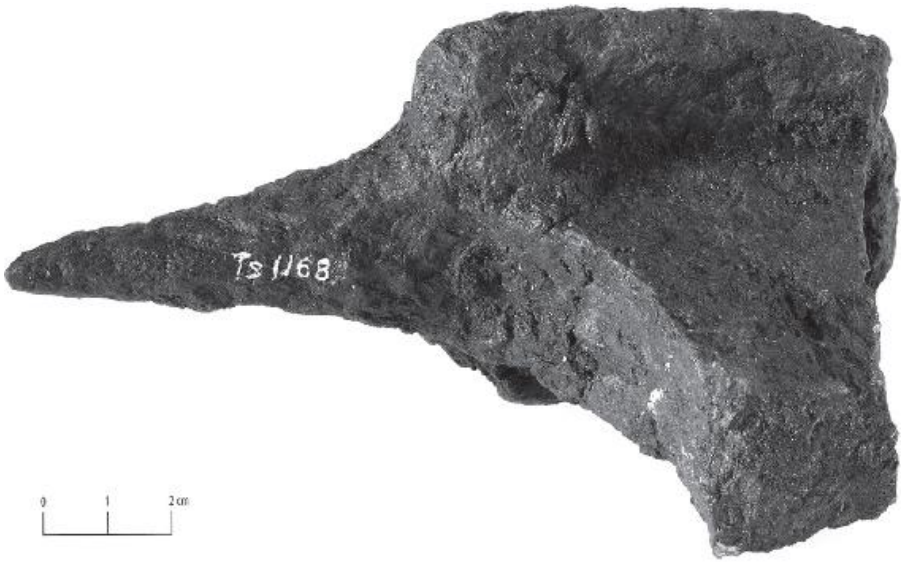

Figure 18.7: Anvil from Lund in Steigen (Photo by M. Karlstad, Tromsø University Museum).

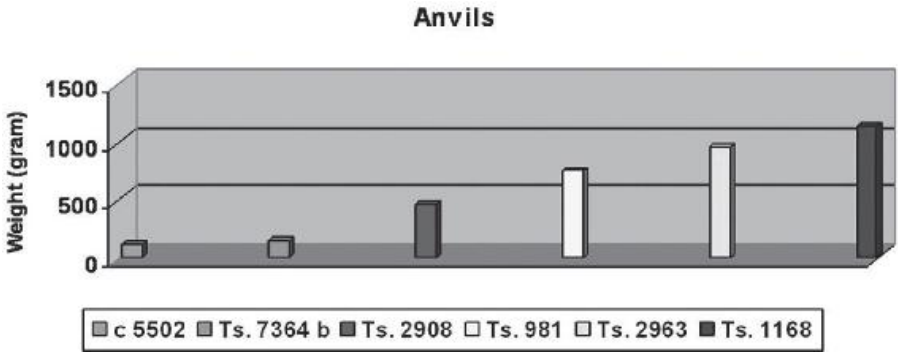

Figure 18.8: The weight of north Norwegian anvils.

What sort of blacksmith?

There are indications that some of the tools discussed here, especially hammers and anvils, were used by an all-purpose blacksmith mostly occupied with repairing, modifying and perhaps also producing small iron tools and soft metal objects. The fact that the majority of the smithing tools are quite small and the presence of four sheet-metal shears among the grave goods support this conclusion. Except for a few quite large smithing tongs, the blacksmith's tool chest, as reflected in the graves, did not have many tools suitable for working large and heavy objects like slag-rich blooms, indicating that the blacksmith was not much involved in iron production.

An interesting question is whether the blacksmiths were settled or itinerant and if they were full-time professionals who made a living from their craft (Hansen 2005, 157) or part-time amateurs who now and then engaged in blacksmithing. To answer questions about settled or itinerant craftsmen it would be useful to compare objects the blacksmiths made to see if some have a common source of origin. Most weapons and jewelry are likely to have been imported and no studies have been conducted of the craftsman-like style or chemical signatures of metal artifacts that indicate they may have had a shared creator. In southern Scandinavia, itinerant craftspeople traveled between towns and marketplaces during the Iron Age (Ambrosiani 1981, 53–54; Pedersen 2010, 322) but there are no studies indicating whether this also were the case in North Norway.

An ethnic dimension?

Today, in traditional societies, the nature of the blacksmith's work often sets them apart from other people as they are often regarded as 'others' and are sometimes ethnically different (Eliade 1978, 99; Hedeager 2001, 486). Ethnicity can be a dubious category that is not easily recognizable in the archaeological material. In North Norway, only one of the 37 graves with blacksmith's tools also had artifacts considered to be of Sami origin (Bruun 2007, 53–54). All the remaining graves displayed only artifacts considered to be of Germanic origin. The supposed Sami element in the grave is three arrowheads with clefted points. This type is found in both a Nordic and Sami context (Serning 1956, 88), but the majority are from areas

with a predominantly Sami population (Zachrisson 1997, 213–214) and the type is thus considered to be relatively reliable as an ethnic marker. The Nordic sagas indicate a link between Sami ethnicity and the craft of blacksmithing (The Poetic Edda 1986, 159–160) but in the Sagas fact merges with fiction; thus they are a problematic source. In the old Norse saga the master blacksmith Wayland is referred to as being the 'son of a king of the Finns', and thus a Finn himself (The Poetic Edda 1986, 159–160). Norse medieval sources consistently referred to the Sami as 'Finns', and therefore it is likely that the saga refers to the Sami (Hansen and Olsen 2004, 47–49).

Boatbuilding and smithcraft are expected to have gone hand in hand since the existence of smithcraft has been seen as a premise for boatbuilding due to the large amounts of iron that would have gone into a ship (Kolsrud 1947, 140). A traditional small boat such as the 15-foot-long *færing* would need approximately 3 kg of iron for nails, rivets and roves, and to build the approximately 36-foot-long *fembøring*, 20–25 kg of iron was needed (Gunnar Eldjarn, pers. comm.). Both in the Sagas and in later written sources the Sami are considered master shipbuilders. In Snorre Sturluson's *Haraldsønnenes saga* (1979, 614), which was probably written in the 1220s, there is a tale about Sigurd Slembe who one winter had a hiding place in Gljuvrafjord (possibly Fiskefjorden) on Hinnøya in Vesterålen, the northernmost island in Nordland County. During the winter, he engaged Finns to build him two ships which were so fast that no other ship could overtake them (Sturluson 1979, 614). This source indicates not only that the Sami were considered master shipbuilders but it also reveals the presence of Sami people in the core area of the Germanic settlements during the early 1100s.

Some post-medieval written sources indicate that ethnicity might have been an important element in determining who practiced the craft of blacksmithing in this part of Norway. It has been documented (Kolsrud 1947, 141) that the coastal Sami in Ofoten in the 1700s excelled as boat builders and that the pine forests were decimated in the vicinity of their settlements due to the demand for materials for shipbuilding (Storm 1881, 403). This is said to have been characteristic of Sami economic life in the 1600s and 1700s (Storm 1881, 403–404), and the sagas indicate that this may have much older roots. Another factor supporting this is that smithing tools are

frequently found in the inventories of Sami estates, but rarely in the Norwegian ones (Kolsrud 1947, 131–132). This trend is so consistent that there seems to have been '...a pure specialization, not only individually but on an ethnic level' (Kolsrud 1947, 131–132; my translation).

Similar data from Vesterålen show that blacksmith's tools were rare in Norwegian men's decedent estates in the early 1800s, while they were quite common in those of Sami men. This is also reflected in the listings of men liable for military service from the same period in which only men of Sami ethnicity are said to have been smiths (Borgås and Torgvær 1998). The same tendency is seen in many probate cases from the 18th century in Karlsøy Municipality in Troms County where blacksmith's equipment is found quite rarely in the Norwegian probate cases compared with Sami ones (Bratrein 1990, 198).

Thus, blacksmithing seems predominantly to have been a traditional craft among the Sami population in the 18th and 19th centuries in Vesterålen and North Troms. Written sources document extensive Sami ship-building activity in the 1600s and the sagas indicate that this has much older roots. An important question is whether the documented specialties of smithing and shipbuilding represent an 'ethnic division of labor' that has roots dating back to prehistoric times?

Despite the above mentioned sources, the archaeological evidence of the Sami presence in the core areas of the Germanic Iron Age settlement, namely the outermost coastal areas of Nordland and Troms, is sparse. Moreover, few archaeological finds documenting the Sami presence are found even in the inner fjord systems which are thought to have been dominated by Sami settlements (Schanche 1986; Hansen 1990; Andersen 2002). Our archaeological knowledge of the Sami presence along the outer coast of Nordland and Troms during the Iron Age is thus particularly incomplete and it should come as no surprise that there is hardly any archaeological evidence of a link between Sami ethnicity and the craft of blacksmithing.

Craft and magic

The principles of forging technology have not changed much over time, and as the tools look much the same we would perhaps be

inclined to assume that the social standing of the prehistoric blacksmith was much the same as that of the modern blacksmith. But this, I think, would be a mistake.

Ethnoarchaeological studies in Africa and Asia (Barndon 1992, 2001, 2004; Schmidt and Mapunda 1997; Rijal 1998; Haaland *et al.* 2002; Haaland 2004; Østigård 2007) have shown that the blacksmith often was considered to be a social outsider with extraordinary skills and knowledge. This gave him a certain prestige as he was able to transform nature to culture, and earth and sand into iron objects. As such, he was placed between humans and nature, and his professional and social life were guided and ruled by taboos which set him apart from other men. According to Hedeager (2001, 485–486), the role of the blacksmith is exactly a consequence of this: 'Blacksmiths and jewelers in traditional societies are usually associated with power because they forge the implements by which the natural and social world may be dominated; furthermore, they create objects that mediate between mankind and the supernatural.' However, at the time when Norwegian archaeology developed as a scientific discipline in the late 1800s, information about mental structures such as rituals and ceremonies which may have been vital to a successful session in the smithy was long forgotten. And, there is no way of knowing if a blacksmith's life in Iron Age Norway was anything like this.

To get an idea of what might have constituted the conception of the prehistoric blacksmith, it is necessary to go back in time using non-archaeological data. There are few written sources from the Nordic countries older than AD 1200, but ancient traditions, legends and myths are reproduced both in the Finnish national epos *Kalevala* and in the Norse sagas. Such sources should be handled with care as it is easy to get lost in the intricacies of the stories. These myths are not exclusively Nordic in origin, but instead constitute part of a common European mythological tradition, and there are numerous references to blacksmiths in both the *Kalevala*, an epic poetry based on Finnish mythology and folklore, and the Nordic sagas. In the *Kalevala* (Kuusi 1987; Ervast 1999), Ilmarinen is a master blacksmith with exceptional powers. Even though the meaning of iron and fire, which are often referred to, is symbolic and not to be taken literally, it provides an indication that the blacksmith had a different status from other men and was seen as a person with extraordinary meditative and

transformative powers.

In Norse mythology, there are several references to dwarf blacksmiths who, among other things, forged magical objects of exceptional power such as Thor's hammer, known as 'Mjölnir', Odin's spear, known as 'Gugnir', Sigurd Fåvnesbane's sword known as 'Gram' and Frey's ship the 'Skidbladnir' (Hoftun 2001; Stefánsson 2005; Lind 2007). The Poetic or Elder Edda and the Prose or Younger Edda were first written down in the 13th century; they deal in part with Norse mythology and in part with events that took place in previous centuries. Even though the Edda poems are not literally considered to be copies of older poems (as each new poet made their own version), they may provide important insights into some myths, ideas and concepts that were internalized in Iron Age culture. Still, there is no way of knowing whether the concept of the master blacksmith with magical powers was part of the role of the blacksmith in the Iron Age society.

A closer look at the forge-stones, which were an essential part of the smithy, may provide an insight into some of the beliefs and powers of blacksmithing. The etymological meaning of the Norwegian word for forge-stone, *avlstein*, indicates that the working of iron might have had magical and symbolic as well as practical values (Haaland 2004, 16). The syllable *avl* may be derived from the old Nordic word *afl* which refers to strength and power. *Avl* may also refer to cultivation, harvest and reproduction (Bokmålsordboka 2010; Fritzners ordbok n.d.).

A few forge-stones have ornaments and engravings resembling the one found at Snaptun in Denmark which has a depiction of a face, assumed to be the Nordic God Loki (Bæksted 2001, 86). Also, a fragment of a forge-stone found at Hov in Hadsel Municipality in Nordland County has engraved on it what may be part of a stylized human face: the two circles are the eyes, while the connecting band indicates the forehead or the eyebrows (Figure 18.9) (Munch 1962, 21–22). Moreover, this forge-stone was found at a place where the local *hov*, a place for worshipping the gods, is supposed to have been located (Munch 1962, 21–22). Placing a smithy in such a milieu might be a consequence of the contemporary understanding and perception of the blacksmith's craft and its relationship to the supernatural sphere. This idea is supported by a forge-stone found in a post-hole

during an excavation of the chieftain's great house at Borg in Vestvågøy Municipality (Johansen *et al*. 2003, 147, fig. 9B.7). The forge-stone and three gold foil plaques known as *gullgubbe* were found in the same room, which is thought to have been the hall where the great feasts took place and where the chieftain conducted religious ceremonies (Munch 2003a, 251, fig. 9H.13; 2003b: 254).

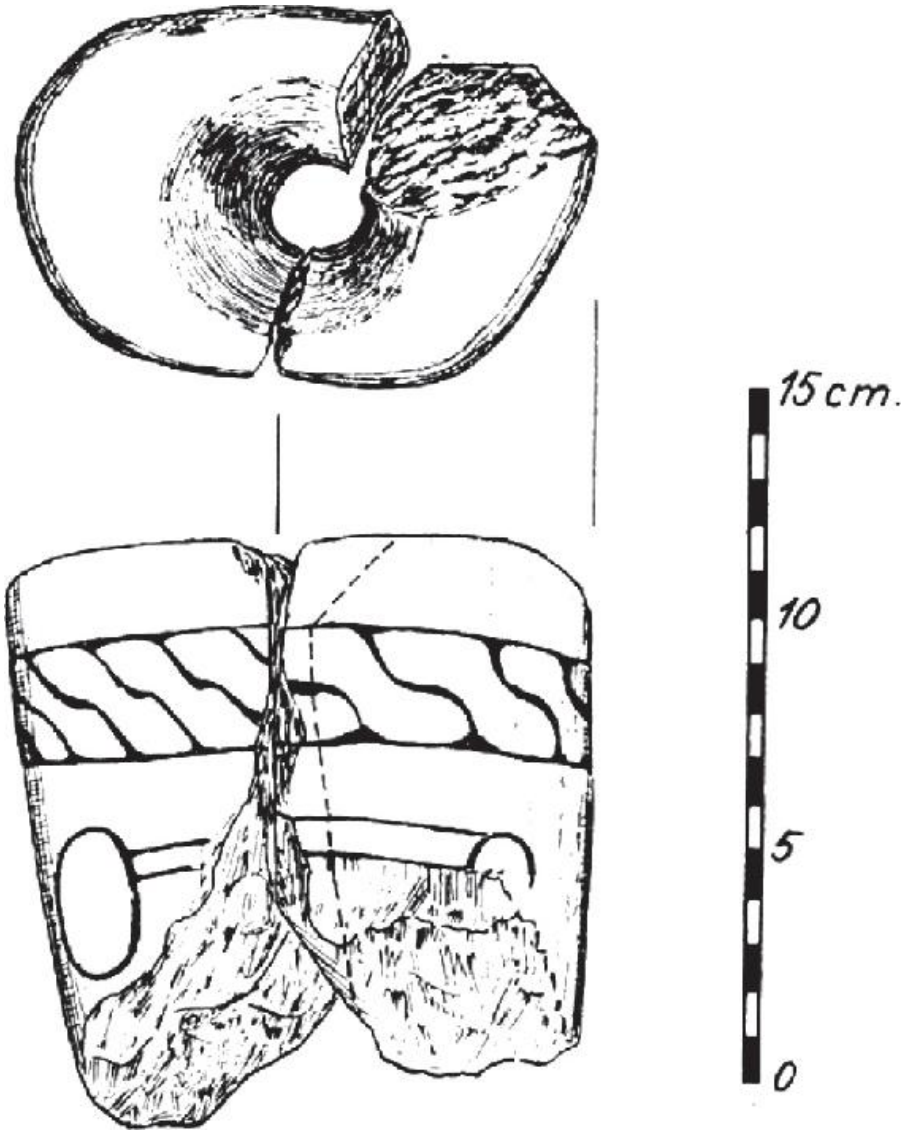

Figure 18.9: Ornamented forge-stone from Hov in Hadsel (Munch 1962, 21).

The Sami were considered to have supernatural powers, not just the Noaide – the Sami shaman – but the Sami people in general. This has influenced the relationship between the Sami and the Nordic people, and the Sami have been much used as healers, fortune tellers, experts in magic and so on (Hansen and Olsen 2004, 60–65, 108–109). Thus, there are signs of similarity between some of the character traits associated with the prehistoric smith and the Sami ethnicity. A find made in 1918 in Melfjordbotn in Nordland County, supports such an assumption. In a cave, thought to be a Sami sacrificial site, a wooden sculpture interpreted as a Sami god was found together with a few fragments of bone and some pieces of burnt clay (Nicolaissen 1919, 19–21; 1920, 8–11). The wooden figure is a 38 cm long double-branched piece of wood, and the head and face are quite distinct, while some of the "body" is broken off (Figure 18.10). The partly fired piece of clay is probably a fragment of a shaft furnace for producing iron but it may also have been part of the clay lining a hearth in a smithy.

Apart from linking Sami ethnicity to iron work, this find may also demonstrate the magical properties of blacksmithing or iron production. In both Africa and Nepal a successful smelting did presuppose the approval of the forefathers or of supernatural powers, which was gained by making sacrifices (Saltman *et al.* 1986; Barndon 1992, 2001, 2004; Herbert 1993; Rijal 1998; Haaland *et al.* 2002; Haaland 2004). The Melfjordbotn find may indicate that the craft of the blacksmith was performed within a framework of everyday realities as well as in the supernatural sphere, as the ritual deposition of bones is well known in Sami tradition.

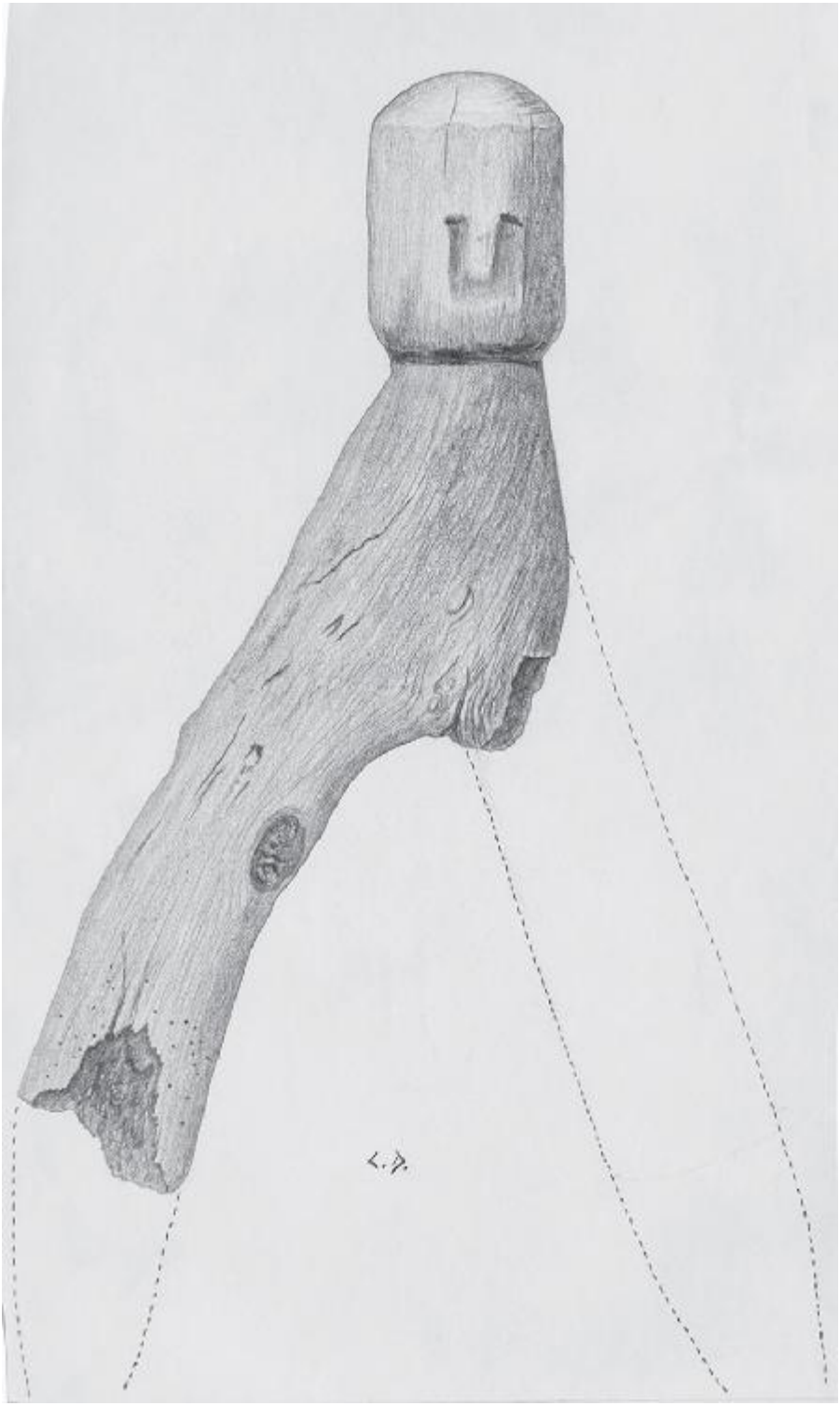

Figure 18.10: Wooden Sami sculpture from Melfjordbotn in Rødøy (Nicolaissen 1920, 20, fig. 2).

The combination of finds such as bones, a wooden sculpture interpreted as a Sami God and fragments of a shaft furnace or the clay lining in a hearth indicates that activities took place that were intended to bridge the natural world with the supernatural one in order to ensure a successful smelting or smithing. Thus, the find indicates a link between the Sami, the blacksmith and the supernatural sphere and further supports the written sources indicating that blacksmithing was a craft which may have been widespread among the Sami. However, the find is not dated and we cannot know if such a practice goes back to prehistoric times.

The discussion of ethnicity and the magical properties of iron or iron work must not be restricted to Sami ethnicity. In Norway, iron, the most solid and durable of metals, has been associated with extraordinary power well into the 20th century. Iron and steel knives used to be placed in cradles as a protection against evil, an iron horseshoe was hung above the door for bringing or keeping good luck, and scissors and knives placed crosswise under the bed made you dream of your future spouse (Solheim 1952, 38–42). Thus, belief in the magical properties of iron has no ethnic restrictions and it may apply to Germanic as well as Sami ethnicity.

Craft and status

The 37 graves with blacksmith's tools dated to the Late Iron Age cover a time span of 450 years (Jørgensen 2012, 15). By modern standards this time period corresponds to 15 generations which statistically means that only two individuals were buried with blacksmith's tools in each generation. In a vast geographical area like North Norway it is apparent that this cannot reflect the historical reality in the sense that only a small number of those who practiced as blacksmiths at any given time were buried with their tools. However, when separating male and female graves we see that 14% of all male graves from the Late Iron Age had blacksmith's tools (Jørgensen 2012, 17). This is a surprisingly high percentage and a closer look at the find context might provide us with a better understanding of this.

When looking into the find context (cf. Figure 18.2), we see that blacksmith's tools in North Norway, as in all of Norway, are often found together with finds indicative of a high status, such as weapons, horse harness objects and hunting equipment (Straume 1986, 46;

Jørgensen 2012, 28–29). Based on a combination of finds from the Late Iron Age, Petersen (1951, 111) concluded that many of the most prominent men were also practicing blacksmiths. Studies of Danish weapons from graves of the Roman Period (BC/AD–AD 400) demonstrate the existence of a tripartite system. Those at the top of the social hierarchy would be equipped with a complete set of weapons – a sword, a shield and a spear – and those at the social mid-level were required to have two weapons, while other free men were required to have only one weapon (Hedeager 1990, 118). Similar requirements also seem to have been in place in Norway during the Roman Period and later during the Iron Age (Storli 2006, 87–88). The type and number of weapons that are found in graves with blacksmith's tools thus seem to be an indicator of the deceased's social status. By sorting out the graves with blacksmith's tools according to the Danish weapon requirements, we see that only one grave had a full set of weapons, 15 graves had a combination of two types of weapons and 14 graves had only one weapon (Figure 18.2). The grave (No. 21) with a full set of weapons is one of those with the highest number of blacksmith's tools (anvil, forging tongs, hammers, forge-stone, whetstone and iron rod/augers) and there can be hardly any doubt that this particular individual belonged to the social elite. However, in general there seems to be no correlation between having a high number of blacksmith's tools and the number of weapons, as two of the four graves with no weapons (Nos. 12 and 28) are among those with the highest number of blacksmith's tools. Weapons are found in 89% of the graves with blacksmith's tools, indicating that these were free men with a mid-level or high status. Thus it seems that graves with blacksmith's tools generally represent individuals of high social status.

This seems to be confirmed by the saga of Egil Skallagrimsson (1996, 146) which tells about Egil who built a mound where he buried his father together with his weapons, his horse and his blacksmith's tools. Skallagrim had a large farm and was of high status but we do not know if he really mastered and practiced blacksmithing or if possessing such tools was meant to signal high prestige, or both. This is a general problem when seeking the meaning behind blacksmith's tools found in graves: did they belong to a blacksmith or were they high-prestige objects that were in the possession of

individuals of high status?

It is likely that the great majority of the 37 graves with blacksmith's tools represent persons belonging to the upper level of society. This is indicated through the deposition of weapons, horses and hunting equipment. The blacksmith's tools that are deposited in the 37 graves indicate that these individuals also practiced blacksmithing, but this does not reveal whether they worked occasionally or full-time as blacksmiths. If the main purpose of depositing blacksmith's tools was to augment status, blacksmithing would in itself have been a high status activity. This could have been to do with the 'magical properties' of iron working or with the status master blacksmiths may have acquired due to their craftsman's skills. Two of the graves with most blacksmith's tools (Nos. 12 and 28) had no other equipment and may represent master blacksmiths whose status was chiefly related to their craft and their skills.

However, there is no way of knowing if they were settled craftsmen who served the local chieftain or several clients in a region, or if they were itinerant and had been summoned by the local leader.

The majority of the graves with blacksmith's tools seem to represent individuals of high status and it is not likely that they would have provided services for those lower on the social ladder. Consequently, there would have been a large number of people who did the occasional smithing for themselves or neighbors, which means that the knowledge of smithing, at least at a basic level, would have been widespread. Also, the comprehensive use of iron in a region with a dispersed settlement pattern would have required a large number of persons with basic knowledge of smithing. Thus it is likely that there were different 'classes' of blacksmiths: the master blacksmiths of high status and those who did the occasional smithing. Ethnoarchaeological studies have documented the social restrictions regarding who could practice as a smith (Herbert 1993, 12). In the Nordic sagas the blacksmiths are ascribed powers ordinary men did not have and thus it is possible that becoming and practicing as a blacksmith was restricted to certain social or ethnic groups or to those proven to possess certain powers.

Simply a craftsman?

There can be no doubt that the craft of blacksmithing was much in

demand throughout the Iron Age. Iron is likely to have been a costly raw material and repairing, modifying and making new tools and objects would have been essential. The ability to modify the strongest metal of all would have made the master blacksmith special and his status was possibly, but perhaps not entirely, related to being a competent craftsman.

A modern smith's status is exclusively related to his or her abilities in the smithy, but this was probably not the case in prehistoric times. Today's separation of technology and society is a relatively modern construction (Ingold 2000, 314) which would have been alien to Iron Age society. The status of the smith and his craft is thus to be sought in the complete set of statuses related to the craft. Technology in prehistoric societies could not be separated from society as technological relations were deeply rooted in social relations and the status of the blacksmith and his craft can only be understood within this relational context (Ingold 2000, 314). Thus, the status of the prehistoric blacksmith is not a consequence of his skills or his craft's relation to supernatural powers; rather, his position and status in society must be seen as a combination of this relational matrix as one is inextricably linked to the other.

In previous examples, I have substantiated the idea that there was much more to the craft of blacksmithing than mere technology and that this might be one reason for wishing to deposit blacksmith's tools in graves together with objects indicating high status. This does not necessarily mean that the deceased did not master blacksmithing to some degree, but the relation between the craft and the supernatural sphere may have been a more important factor in depositing such tools than skill as a blacksmith. Thus, it is likely that most graves with blacksmith's tools and high status objects do not represent professional blacksmiths but high status individuals who sporadically practiced blacksmithing. Judging by numerous finds of slag at Iron Age farms, smithing was a widespread activity but the graves of the great majority of those who occasionally practiced the craft are seldom found and never recognized as most individuals were not given any tools on their journey to the land of the dead.

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Chapter 19

Bohemian glass in the North. Producers, distributors and consumers of late medieval vessel glass

Georg Haggrén

The connections between the production, distribution and consumption of medieval tableware have seldom been analysed and discussed, but by taking Bohemian glass vessels as a case study, it is possible to access this issue. What kind of networks and logistics connected the following: the workers at the small glass house known as 'Kyjov II, near Doubice in the Ore Mountains (Czech Republic); consumers in Scandinavia, such as merchants in one of the Hansa's most important offices, in Bergen (Norway); and those in southern Finland, such as the townspeople and the bishop of Turku (Sw. Åbo), the castellan of Raseborg, the noble family in Jutikkala manor, and the peasant population of a small rural village called Mankby?

In the Middle Ages and Early Modern era there were two major traditions of glass-making in Europe. In the Mediterranean world, the primary product was soda glass, while the glass blowers north of the Alps made potassium glass. During the 13th, 14th, and 15th centuries, certain German-speaking areas in Central Europe became important glass producers. The production of glass was particularly concentrated in mountainous areas covered by large forests. Such production centres were: the Upper Weser region (Northern Hesse, Westphalia, Thuringia, Franconia and Saxony) in the north; Lorraine, the Southern Netherlands and Rhineland in the west; Spessart, the Black Forest, Württemberg, the Bavarian Forests and Tyrol in the south; and Bohemia, Moravia and Silesia in the east (Bruckschen 2004, 38–39,

225–229; Drahotova 1983, 71; Polak 1975, 45). In addition, there were a number of minor production centres outside these areas. For example, in the late Middle Ages glass was made at least as far north as Holstein (Drahotová 1983, 71; Poser 1981, 17), while individual glassworks no doubt also existed in north-eastern Central Europe, but have not yet been identified.

The sand used as the raw material in glass production almost always contains iron oxide, and as a result, finished glass is usually green in colour, assuming it has not been deliberately coloured or decoloured through the addition of other metal oxides. Medieval vessel glass made north of the Alps was traditionally referred to as 'forest glass' (Ger. *Waldglas*). Until the late 20th century, the common belief amongst glass researchers was that most of this forest glass was, to a greater or lesser extent, green. This theory was crystallised in 1933, when Franz Rademacher published his classic work '*Deutsche Gläser des Mittelalters*'. Nearly all of the intact vessels presented in his book were made of green glass. The majority of the beakers published by Rademacher had survived as reliquaries, as in the late Middle Ages, especially after 1400, it was common practice to curate holy relics in sealed glass beakers. Hundreds of late medieval *Krautstrünke* ('cabbage stalk glasses'), *Maigeleins*, *Kreuzrippenbecher*, and other optically-decorated beakers were kept as reliquaries in churches. As a result, dozens of these green beakers have survived (Rademacher 1933 (1963), 29–33, 91). In contrast, there are only few colourless beakers among these reliquaries. One of them is a small beaker decorated with applied glass threads (Ger. *Fadenrippenbecher*) found in a church in Rehna in Northern Germany (Baumgartner and Krueger 1988, 291; Rademacher 1963 (1933), 103, 146, Tab. 30d).

After World War II, archaeologists in East Germany and Czechoslovakia began to find more and more colourless glass in medieval contexts. However, it was only in the 1980s that the dominance of green glass was questioned. As late as 1983, a Czechoslovakian glass researcher, Olga Drahotová, stated that 'the decolorizing of glass only became widespread in the first half of the 17th century' (Drahotová 1983, 70). An important moment in the history of research into medieval glass was 1988's international exhibition *Phoenix aus Sand und Asche* in Bonn and Basel (Baumgartner and Krueger 1988). Since then it has been clear that a

significant component of the medieval vessel glass made north of the Alps was colourless or almost colourless. This is particularly true in the case of medieval Bohemian glass (cf. e.g. Baumgartner and Krueger 1988, 312, 290.). Today, it is clear that glass made in this Bohemian tradition was used not only in Bohemia, but also across vast areas of northern central Europe and Scandinavia. This glass is the subject of the present study. For ease of reference, in what follows all vessel glass made in the Bohemian tradition will be referred to as 'Bohemian glass'.

Special features of the glass made in the Bohemian tradition

Bohemian glass has some particular features that distinguish it from glass made elsewhere in Europe:

1) The material is characterised as 'potassium-chalk glass', like most of the glass made north of the Alps.
2) The glass itself is almost colourless, often with a slightly greenish, yellowish, or sometimes violet tint.
3) Vessels are often decorated with cobalt-blue glass threads.
4) Beakers are decorated with horizontal glass threads, often with small, sometimes tiny prunts (blobs of glass applied to the surface of the vessel). Occasionally decoration is comprised of wavy threads.
5) The base ring is always made of a wound glass thread. In small beakers there is only a single or double thread around the base, but in larger vessels the thread may be wound several times. In almost all cases, the base rim has been smoothed.
6) Occasionally, vessels feature optical decoration, made by mould-blowing.
7) Most of the vessel glass is rather thin (often less than 1 mm thick).

In the archaeological material, it is usually possible to identify Bohemian glass. It should be noted that some of this is green, rather than colourless. Such glasses are especially well known in northern Germany (e.g. from Brunswick), where they have been interpreted as local products (Baumgartner and Krueger 1988, 290, 294; Bruckschen 2004, 119–120; Haggrén and Sedláčková 2007, 193–194). Nonetheless, Bohemian glass and its vessel types differ from the

products made in other known medieval glass-producing areas. Mediterranean glass vessels were often colourless or light green, but they were made of soda glass, rather than potassium glass, while the glass made in the Rhineland or elsewhere in western Germany was mostly green. This distinction was maintained throughout the Middle Ages, and as late as 1593, a Bohemian glassblower named Peter Hüttel was called to Hessen to instruct the local glass makers in producing decolorized glass (Killing 1927, 56–57). There were also differences in traditions of decoration. For example, in western 'forest glass', the prunts were usually much larger than in the Bohemian beakers.

Drinking vessels made in the Bohemian tradition

In Bohemia, the output of medieval glassworks consisted of several different types of beakers (See Černá and Frýda 2010, 351; Frýda 1990; Hejdová *et al.* 1983; Hejdová and Drahotová 1989). Some of these beakers were produced to uniform designs, but among the archaeological finds there are also a number of unique vessels (see e.g. Černá 2003, 116–117). Glass made in Moravia belonged to the Bohemian tradition, but local vessel types also existed, such as beakers of Olomouc type (Sedláčková 2006; idem 2010). The entire range of beakers made in the Bohemian tradition has not yet been found in northern Europe. Amongst this northern find material, it is possible to distinguish at least six different beaker or vessel types belonging to the Bohemian tradition (Figure 19.1).

The most typical beakers are simply called Bohemian beakers (Ger. *Stangenglas*). These tall, slender, prunted beakers dominate the 14th- and early 15th-century glass finds in Bohemia, but they were popular in the Baltic region too. Some of these Bohemian beakers were very large, tall vessels; there are examples of *c*. 50 cm-high beakers both from Bohemia and Tartu in Estonia. During the late 14th and 15th centuries, these Bohemian beakers were commonly used in the eastern parts of Germany, from Bohemia, Moravia and Silesia to Mecklenburg and East Prussia, as well as in the whole Baltic region (Baumgartner and Krueger 1988, 312–315; Biszkont 2003; Dumitrache 1990, Golebiewski 1993, Möller 1995, Schäfer 1995a, 1995b). In the north, a particular variety seems to have been favoured; these vessels were decorated not only with prunts, but also with blue glass trail encircling the mouth. The best known example of this kind of vessel is

an almost intact beaker found at Kalmar, Sweden, but shards of similar beakers have been found from Bergen, Tartu and Turku (Haggrén 2003, 225; Hofrén 1961).

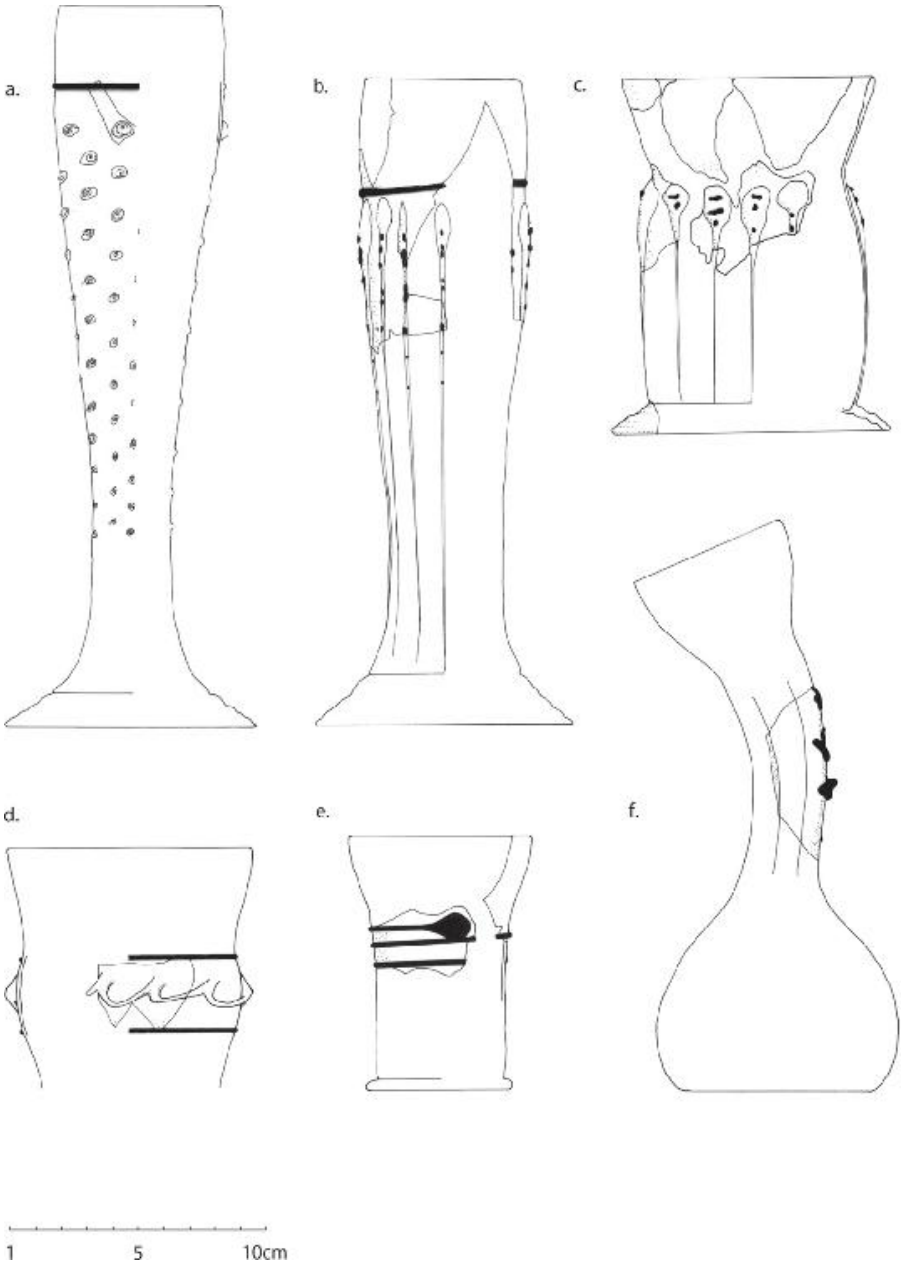

Figure 19.1: Bohemian glass found in Turku: a) a tall Bohemian prunted beaker; b–c) Fadenrippenbecher; d) a beaker decorated with horizontal wavy trail; e) a beaker with a blue glass trail decoration; f) a Kuttrolf. (Illustrations by G. Haggrén and A. Haggrén).

Another tall beaker type was the so called clubbeaker (Ger. *Keulenglas*). Like the Bohemian prunted beakers, the clubbeakers were tall glasses made for drinking beer. The upper part of these beakers was wider than that below, and as a result the form of the vessel was reminiscent of a club. Clubbeakers were usually decorated with applied glass threads, most often encircling the upper part of the vessel (Baumgartner and Krueger 1988, 386; Sedláčková 2007, 190–194).

Beakers decorated with a horizontal wavy trail, and often with a blue glass thread encircling the mouth could be called 'Baltic beakers'. The form of these beakers resembled the clubbeakers. Shards of 'Baltic beakers' have been found from several sites around the Baltic (e.g. Tartu, Turku, Ulvila (in Finland), Stockholm, Lübeck and Elblag). From Moravia there are finds dating to the late 15th century (Haggrén 2003; Mäesalu 1990, 448, Taf. XXXII: 5; Sedláčková 2007, 193).

Amongst the most popular glasses on the tables of the Baltic region were those of the *Fadenrippenbecher* type (that is, beakers with applied glass threads) (Figure 19.1: b and c). These articles, blown from colourless glass, were decorated with applied vertical ribs and blue trails encircling the vessel. In addition to the normal shorter type, there was a tall, slender model, resembling the tall Bohemian prunted beakers, known from several north-European towns (e.g. Lübeck, Tartu, Turku). Some of the *Fadenrippenbecher* were large vessels, but among the archaeological find material there are also several rather small beakers, which resemble modern drinking glasses (Baumgartner and Krueger 1988, 290–295; Haggrén and Sedláčková 2007).

Beakers with a mouth that opened outwards, and with blue or colourless glass trail decoration were also typical of the Baltic region, especially of its eastern regions. Like the 'Baltic beakers,' these beakers, which date from the late fourteenth and early fifteenth centuries, are hardly known anywhere else. The finds material suggests that these beakers were made only in rather small sizes (Haggrén 2003, 226–227; Mäesalu 1990, 448, Taf. XXXII:6).

The sixth vessel type, the so-called *Kuttrolf*, (Figure 19.1: f) was not a beaker at all. Rather, it was a bottle made for drinking wine. The *Kuttrolf* had several tubes in its neck, and as a result of this design, a bubbling sound was created when one drank from this form of vessel (Baumgartner and Krueger 1988, 316, 319–325; Rademacher 1963

(1933), 60–70).

Most of the beakers made in the Bohemian tradition described above were rather large vessels. Only among the *Fadenrippenbecher*, and beakers decorated by encircling blue or colorless trail, do we find examples of smaller beakers. In contrast, among the north-European find material there is a plentitude of shards and bases from small beakers. It is probable that many of these small beakers had little or no decoration.

The medieval Bohemian glass industry

The most important medieval glass producer in eastern Central Europe was Bohemia. The oldest surviving archival sources regarding Bohemian glassworks date from the early 14th century, while the oldest archaeologically-dated glassworks sites in Bohemia seem to have been established by the second half of the 13th century (Erna 2003, 107; Vondruška s.a., 11).

Rather than being situated in the vicinity of towns and villages, the glassworks were located in mountainous areas covered by forests. Enormous quantities of wood were needed in glass production, not only as firewood, but also for the production of ash and potash, which were needed as raw materials. This heavy consumption of wood soon resulted in depletion of the local resources, which usually forced the glassmakers to abandon their glasshouses after a few decades. As a result the trade as a whole came to be thought of as associated with emigration or nomadism. However, there were some glassworks, such as Horni Chřibská, at which production remained continuous over centuries (Langhamer 2003, 34).

In Bohemia the glass industry concentrated on both the northern and southern border areas: on the Ore Mountains (Ger. *Erzgebirge*) in the north, and on the Bohemian Forest (Ger. *Böhmerwald*) in the southwest. In these areas, there was enough forest (especially beech forest), for firewood and production of potassium, one of the main components of glass, as we have seen. In these mountains it was relatively easy to acquire the two other principal components: high quality quartz sand and limestone. In addition, the glassmakers also needed oxides of cobalt and manganese. The former was needed in making blue glass, while the latter made it possible to decolorize glass (Langhamer 2003, 27. See Krimm 1982, 26–30). Cobalt oxide in

particular is not a very common mineral, but it was available at least in Kutna Hora, a Bohemian mining town famous for its silver and copper production. In addition to the raw materials of glass making, the glassblowers also required high quality clay for crucibles and furnaces. Clay is a heavy material to transport, and it is unsurprising that in the Middle Ages suitable clay deposits had a certain influence in the siting of glass production. Almerode in Hessen was famous for its clay deposits, which were perfect for the needs of the glassmaker, but there were also local deposits of suitable material in Austria and Bohemia (Killing 1927, 13–14, 33; Martinon Torres and Rehren 2006, 520).

The most important actors in medieval glass production were the master glassblowers. In contrast to many other central European artisans, glassblowers were freemen, rather than serfs. They were respected, and belonged to a social level higher than that of peasants and most townspeople. They were proto-industrial entrepreneurs, who paid a fee for the right to establish a glasshouse, and to produce glass. They often also had to pay for the right to consume forest timber. It was not uncommon for a part of this rent to be paid in glass vessels.

Glassmakers were often on the move; in contrast to the situation faced by glassblowers in Venetia, in Germany and Bohemia there were no serious strictures against the emigration of skilled masters. Thus, they were permitted to leave their old glass houses in search of employment in other existing glassworks, or by founding new plants (Krimm 1982, 204–219; Polak 1975, 25–26; Vondruška s.a., 26, 29). Usually, they stayed for a decade or two, and when the forest around the glasshouse had been felled and burnt, it was time to move to a new site. They often moved in groups, comprising a couple of men and their families. A team of this size was able to run a glasshouse wherever there were sufficient raw materials and timber.

Glass production was a family enterprise. Although the cutting of firewood, production of ash or potassium, and excavation of quartz sand were tasks for which there was no need for professional craftsmen (Vondruška s.a., 26–28), the master glassblower alone maintained the skills needed to make qualified glass. Alongside him, he had a number of other glass blowers and apprentices. In any one medieval glasshouse, there were usually one or two master glassblowers, and a couple of apprentices. Individuals who were not

descendents of the master glassblower rarely had the opportunity to be employed at a glassworks. Indeed, the guild order for the glassblowers in Spessart (from 1406, the oldest surviving order for glassmakers) lays down that 'nobody shall teach glassmaking to anyone whose father has not known glassmaking'. Somewhat later examples prove that similar regulations also operated in other territories, such as Hesse and Lorraine. The skills of the masters were well-kept secrets, a kind of immaterial inheritance. As a result, surnames of glass blowers, such as Preussler, Wentzel, Gerner, Kunckel, Schürer, and Seitz dominate the industry for centuries. Even the wives, daughters and children were involved in the work in the glasshouse. One of their most important tasks was the packing of ready-made glass vessels; each fragile vessel had to be covered with straw, and packed in baskets or cases (Krimm 1982, 41–62, 226–228; Polak 1975, 23; Stupperich 1984, 245; Vondruška s.a., 26–28; concerning immaterial inheritance, see Levi 1986; Haggrén 2001a, 183–188).

Bohemian glass works

In the collections of The British Library (Add. ms. 24189 fol. 16r), an extremely informative medieval painting (ink and tempera on parchment) illustrates the manufacturing process at a glassworks. This picture belongs to a series of illustrations accompanying a popular novel called *The Travels of Sir John Mandeville*. The illustration was produced somewhere in Bohemia (Czech Republic), between around AD1410 and 1420. It purports to illustrate the fabled pit that delivered the highest-quality sand for making the finest glass. This pit was situated close to the tomb of Memnon, somewhere in the Near East. However, in terms of morphology, the picture appears to illustrate nothing other than a Bohemian glass works (Krása 1983, 15, 129, 131; Langhamer 2003, 16–17) (Figure 19.2). As such, it constitutes an invaluable source in our understanding of this phenomenon.

The central motif in the picture is a glasshouse, set within mountainous landscape covered by forest. The glass house is dominated by the main furnace, with glass blowers and apprentices around it. In the centre we see two master glass blowers, while a youngster stokes the furnace with firewood. Another apprentice is

putting glass vessels – including typical Bohemian ready-made prunted beakers – into an annealing oven and ash pots. In another picture from the same series – showing a feast in Cyprus – one can see a similar, tall Bohemian beaker, this time full of beer (Add. ms. 24189 fol. 5v).

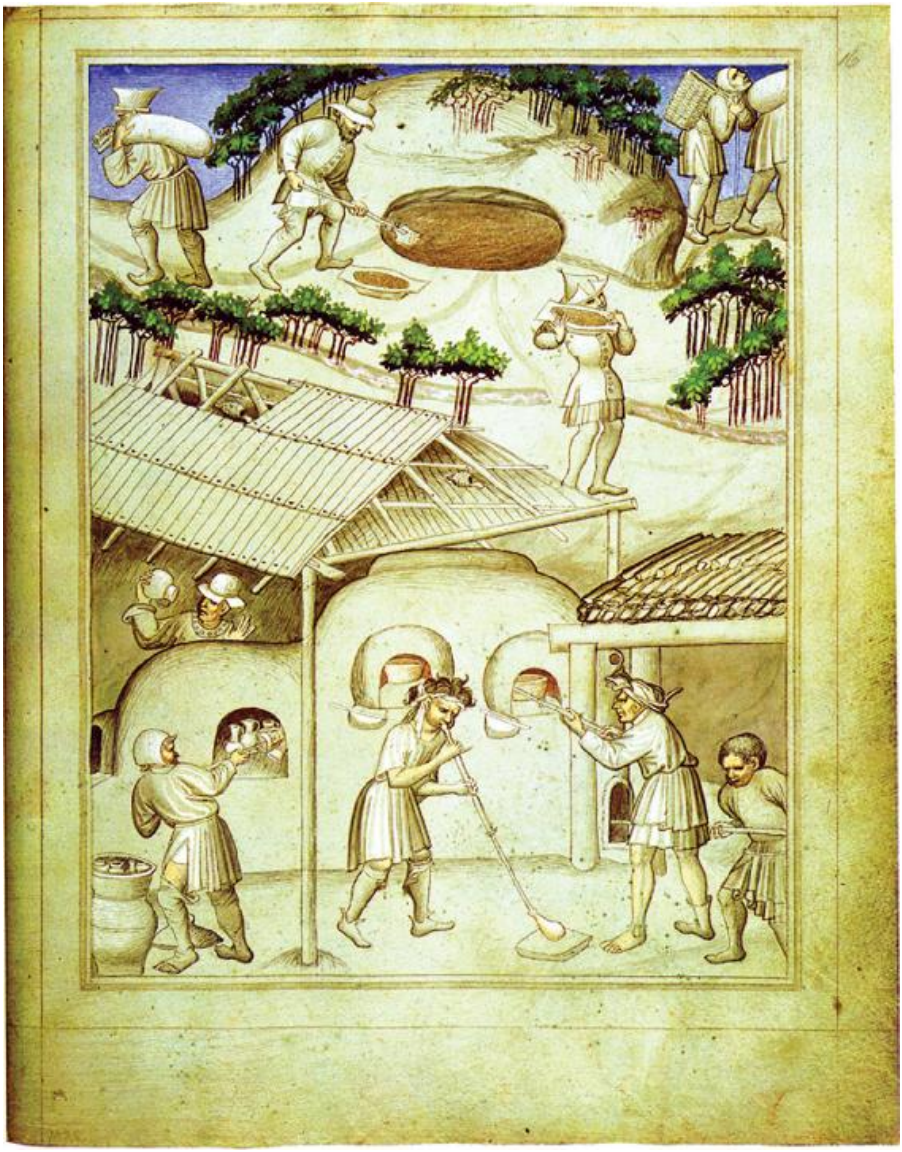

Figure 19.2: A Bohemian glass works from the beginning of the 15th century. (© The British Library Board. Picture book of Sir John Mandeville's Travels. Add. 24189, f.16r).

The costumes of the workers in the glass house reflect the warm atmosphere around the melting furnace. One can feel the warmth, as the workers are dripping with sweat. Indeed, there is a remarkable contrast between the attire and demeanour of the glass blowers, and of a well-dressed master or glass retailer controlling the products behind the annealing oven. In the background, behind the glassworks, are several workers. One is digging sand, while another carries it toward the glasshouse. We may also identify three men, two of whom are carrying heavy sacks, perhaps containing some kind of raw material. The third man has a basket on his back and a stave in his hand. We may suppose that he is anticipating a longer trip; he is a peddler, engaged in the sale of the products of the glassworks.

This Bohemian miniature is the most realistic illustration of contemporary glass-making that survives from the Middle Ages, though a number of informative illustrations are known from the 16th century. Probably the most informative of these is a woodcut from Georg Agricola's famous *De Re Metallica* (1556). This image may be seen as a reliable source of evidence for our trade, given its author and commissioner: as a town physician in Jáchymov (Ger. *Joachimstal*) in north-western Bohemia, Georgius Agricola was no doubt well informed regarding Bohemian glass-making traditions. Furthermore, Jáchymov was the hometown of Basilius Wefring, the woodcutter responsible for the illustrations themselves (Agricola 1556 (1928/2006), XII Kap., 507; Greindl 1984, 109–111) (Figure 19.3). It may thus be worth spending a little time discussing the scene illustrated.

Situated in the centre of the picture is a melting furnace, around which five men illustrate different stages of the glass-blowing process. In the foreground we see glass shards and glass-making tools, as well as a large wooden case filled with glass vessels (finished products ready for transport to market). In the background is a peddler, with stave in hand, and on his back a basket loaded with glass. In front of the furnace one may observe a clerk counting and controlling the products, and a pregnant woman with a baby. One may assume that she represents the wife of one of the masters.

Some decades ago, only 15 medieval glassworks were known in Bohemia and Moravia. By 2003 the number was 49. Most of the recently discovered sites were found by archaeologists, and over the

last 20 years a number of medieval glasshouses have been excavated in Bohemia (Černá 2004; Langhamer 2003, 16). One, known as Kyjov II, has been found near Dubice in the Ore Mountains, in the northernmost corner of the Czech Republic. On the basis of the excavated finds, this has been dated to the beginning of the 15th century. The foundations of the glass furnace, two additional ovens, and a refuse heap were excavated between 1996 and 2001. Such features are the structures most typical of glasshouse sites, and shards of vessels including Bohemian tall, prunted beakers and the *Fadenrippenbecher* (Černá 2003; Černá 2004, 22–24) have been recovered from the excavated refuse heap. Eva Černá has compared the structures found in Kyjov II to the illustration in the early 15th-century manuscript mentioned above, and the use of these sources in tandem has allowed a reconstruction of the glasshouse.

Figure 19.3: A Bohemian glass works in the 1550s. (Source: Agricola, G. MDLVI: De Re Metallica Libri XII).

In Bohemia, glass vessels have been found at sites ranging from castles to urban environments. Moreover, at least in Pilsen, domestic glass was commonly used not only by rich merchants, but also by the urban middle class. It seems that in Bohemia, glass vessels were not luxury items used exclusively by the aristocracy. Rather, the ordinary townspeople could afford at least some pieces (Hejdová and Nechvátal 1970, 100–101; Haggrén and Sedláčková 2007, 198–202).

Medieval Bohemia's glass industry was at least partially an export industry. It seems that in the case of the *Fadenrippenbecher*, production for export continued into the 15th century. Even when these beakers had come to be seen as old-fashioned, and had lost their popularity in Bohemia itself, they retained a certain demand in the northern markets (Haggrén and Sedláčková 2007, 202). Moreover, the export of glass vessels made in northern Bohemia also reached large areas of eastern central Europe, though only a small amount seems to have been exported south to Austria. We can be confident about this, as the large find material of medieval vessel glass found in Vienna (Wien) contains only a few shards of glass made in the typical Bohemian tradition. This phenomenon may perhaps be explained by the fact that the tall Bohemian beakers were made for drinking beer, while the people of Vienna were more used to drinking wine (Tarcsay 1999, 23, 123).

Transport and trade of glass vessels

The Ore Mountains (Ger. *Erzgebirge*) formed a natural border between Saxony and Bohemia. In these regions it was impossible to transport trade articles by the waterways. If there were suitable roads, glass and other commodities could be transported by wagons and horse loads, but moving trade articles was nonetheless slow and challenging, especially when shipping such fragile items as vessel glass. All the same, there are suggestions that traders were mobile. From the late 17th century, there are examples of Bohemian glass traders travelling over long distances. One of them, J. F. Kreybich from Kamenický Šenov, sold glass in Ljubljana in the south, Riga in the north, England in the west, and Russia in the east. We know this as Kreybich kept a diary, but of course such sources rarely survive from the Middle Ages (Vondruška s.a. 22–23.)

Besides the wagon and horse loads, wandering peddlers were often

trusted as glass traders, and laden with large baskets of wares. We have already seen such a peddler operating as a glass-seller in this way, in Mandeville and Agricola's illustrations of medieval Bohemian glassworks. (Cfr. Stupperich 1984, 242–248; Loibl 2001, 79–80; Vondruška s.a. 22–23). Obviously, these peddlers and other small-scale tradesmen transported Bohemian glass vessels northwards over the mountains to Saxony, where their loads could be transferred to riverboats. The archaeology tells us this; the distribution of finds of *Fadenrippenbecher* (beakers with applied glass threads) shows concentrations on both sides of the river Elbe and its tributaries.

It was, of course, faster and cheaper to transport products on the waterways than on the roads. There is little extant archival material concerning the medieval trade of Bohemian glasses, but at least in the late 16th century, glass made in Spessart (Germany) was regularly transported by riverboats down the river Main. On the other hand, glass produced in Hesse was transported by the river Weser, and Thuringian glass by the river Elbe. Through the Elbe there were convenient communications to the Baltic coast in the north. In the late Middle Ages and early modern era, the destination of a great deal of the glass produced in central Germany was the western European and Baltic markets. The large numbers of small states and customs stations were problematic, and raised the costs of transporting commodities in medieval Germany. Every prince and town stood to profit from the transit trade running through their territory. However, by the late 14th century, the king of Bohemia ruled territories as far north as the Mecklenburg border. Holding such dominion probably lowered costs and facilitated trade via riverboat (Hejdová and Nechvátal 1970, 95; Keller 1984; Krimm 1982, Loibl 2001, 80–83, 86–87, 90–91).

Besides the Elbe, rivers such as the Weser, Oder and Weichsel may have been used to transport Bohemian glass. In northern Germany, Bohemian beakers were shipped to Hanseatic towns on the south coast of the Baltic, while a large quantity of vessel glass also found its way to the urban households of Mecklenburg and Pomerania (e.g. Lübeck, Rostock, Stralsund and Greifswald) as well as Danzig and Elbing in western Prussia (Dumitrache 1990; Golebiewski 1993, Möller 1995, Schäfer 1995a, 1995b). Likewise, the glass made in the Bohemian tradition in Silesia had important markets in Poland (Biszkont 2003, 155).

Merchants in the north German Hanseatic towns probably acted as middlemen who oversaw the trade of glass (among other commodities) to customers along the Baltic coast. Numerous finds from Bergen show that this trade also reached Norway in the west. Unfortunately, neither archival sources concerning the organisation of the glass trade, nor wreck finds containing medieval glass vessels are known from the Baltic area. The large northern find material justifies our supposition that glass was transported in relatively large consignments, just as we know was the case for the trade of stoneware (the excavations of a late 13th-century wreck of Egelskär in Nauvo in the Finnish Archipelagic Sea resulted in finding dozens of early stoneware vessels; see Tevali 2010; Wessman 2007). The customs rolls from the mid-16thcentury reveal that besides wholesale shipments (i.e. large cases or barrels filled with glass vessels) freighted by merchants, ordinary Swedish seamen carried home single beakers in their personal chests (Haggrén 2011). It is likely that both mechanisms of glass import were already operational by the Middle Ages.

Alongside ordinary merchants, it is possible that the Teutonic Order also participated in the production and trade of glass. In the 14th century the Order was one of the most important actors in the Hanseatic trade, and archaeological interventions on the site of the Order's residence in Prague have revealed a significant quantity of Bohemian vessel glass. Excavation of the well in the residence's yard has revealed pieces of 30 *Fadenrippenbecher* (almost 10% of the total number of finds known until 2006; Haggrén and Sedláčková 2007, 189, 209). Furthermore, Rademacher had already noticed finds of tall Bohemian prunted beakers in the vicinity of the Order's main residence in Marienburg, Prussia (Rademacher 1963 (1933), 110). Finds of glass made in the Bohemian tradition are also rather common in Estonia, large areas of which were ruled by the Teutonic Order (See e.g. Mäesalu 1990). On the basis of the large find material connected to (1) the Order's residences and castles, and (2) East European towns, it is possible that glass production also took place somewhere in Poland, Eastern Prussia, Livonia or Estonia (that is in the territories ruled by the Order). It is interesting to note that Karel Hetteš stated in the 1950s that the Teutonic Order may already have played some role in importing the glass-making tradition from the Holy Land to

Bohemia in the late 13th century (Hejdová and Nechvátal 1970, 100–101).

In the 14th century the Order ruled over large territories in north-western Europe, but in 1410 the Knights suffered a serious defeat at the battle of Tannenberg. This defeat seriously affected trade in eastern Europe, but even more fatal for the Bohemian glass industry were the Hussite wars (1420–1434) which handicapped not only the trade of glass but also the production of Bohemian glass itself. Thus, it seems that the heyday of the medieval Bohemian glass industry was already over by the 1420s, though the effect of these wars was not so fatal for those glass blowers who made glass in the Bohemian tradition in northern areas such as Saxony or Thuringia.

The northern finds

By the early 1960s, Holger Arbman and Manne Hofrén had noted that certain medieval glass finds found in Sweden had analogues in Bohemia. From the find material from Kalmar Slottsfjärden, it was possible to reconstruct a tall, prunted, so-called 'Bohemian' beaker. Similarly, Arbman identified a number of pieces of beakers with applied glass threads (*Fadenrippenbecher*) from the Swedish finds (Arbman 1960; Hofrén 1961).

In the late 1980s, an assemblage of medieval glass was found in Tartu, Estonia (Mäesalu 1990), and in the 1990s a large number of glass finds belonging to the Bohemian tradition were recovered in Turku (Sw. Åbo), Finland. Likewise, a large group of shards from glass vessels made in the Bohemian tradition was found Bryggen, Bergen. Together, these discoveries awakened interest in medieval glass finds in northern Europe. In 1999, the Aboa Vetus Museum in Turku and a network of Nordic museums specialising in medieval archaeology put together an exhibition about medieval glass found in northern Europe; the exhibition was entitled *SKÅL*! (Haggrén 1999). In connection with this exhibition, research was undertaken on the medieval glass finds housed in a number of museum collections in Scandinavia, Finland and Estonia. This research demonstrated that, during the Middle Ages, Bohemian glass was surprisingly widespread in northern Europe (Haggrén 2002). Moreover, over the last ten years new glass finds have become increasingly frequent, and no longer just from the towns, but now also from agrarian sites.

The distribution and use of Bohemian glass in northern Europe, especially in Finland

In the early 20th century, and later in the 1970s and 1980s, a number of individual shards of medieval Bohemian vessel glass were found on excavations in the ruins of medieval castle sites in south-western Finland; sites included Sibbesborg in Sipoo, Vanhalinna in Lieto, Liinmaa in Eurajoki, Högholmen in Hiittinen (Sw. Hitis), and Kastelholma in Ahvenanmaa (Sw. Åland) Material is also known from Swedish castles such as Piksborg in Småland, and Falsterbohus in Scania. On the basis of these finds it seemed that glass vessels were intended for the exclusive use of the knights and noblemen who would have been resident at these sites (Arbman 1960).

Turku was the most important medieval town in Finland. Prior to the 1990s, excavations in the town resulted in only a couple of pieces of medieval vessel glass. However, prior to this date, large scale, controlled excavations had not been undertaken in the centre of medieval Turku. Indeed, since 1994 a large quantity of medieval vessel glass has been found here, and amongst this, glass made in the Bohemian tradition is dominant; from the site of Aboa Vetus Museum alone there are pieces of about 50 vessels. The individual vessels have been distinguished on the basis of the nature of the glass itself (through both chemical analysis and comparison of its colour and corrosion), and then by examination of the 'tint' of the blue drops. At least 17 of these vessels are *Fadenrippenbecher* (cf. Figure 19.1b–c), but there are also shards from tall Bohemian prunted beakers, clubbeakers, so-called Baltic beakers, and beakers decorated with encircling glass thread (Haggrén and Sedláčková 2007, 195, 232–234) (Figure 19.4).

Since the excavations on the site of the Aboa Vetus Museum, several larger interventions have been made. All have produced large numbers of shards of medieval vessel glass. The site of Aboa Vetus Museum and most of the other sites were situated in quarters of the town that seem to have been occupied by merchants. Some of these merchants seem to have been quite wealthy, and the presence of glass vessels in their households should come as no surprise. Among the finds there are shards not only of Bohemian glass, but also of glass from luxurious, enamelled Venetian and Islamic beakers (Haggrén

2003).

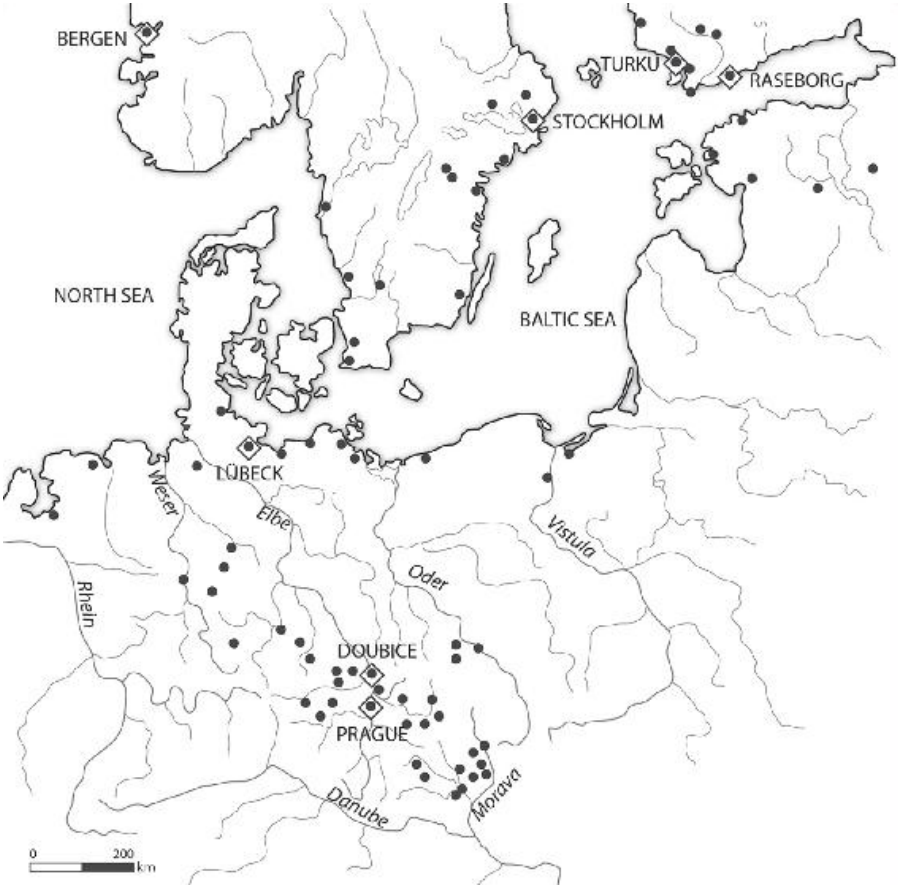

Figure 19.4: Finds of the s. c. Fadenrippenbecher. *The black dots represent find spots. (Illustration by M. Holappa).*

Prior to 1998 – when a large excavation was undertaken at a site called Åbo Akademi – we had no knowledge of the glass inventories of medieval townspeople belonging to the middle or lower classes. The site of Åbo Akademi was situated in a quarter which, during the Middle Ages, was populated by less prosperous retailers and craftsmen. Quite surprisingly, a great quantity of glass was found there, and a substantial component of the finds related to Bohemian vessels; there were pieces of at least 23 *Fadenrippenbecher*. It therefore seems that as early as the late 14th century, not only the richest merchants, but also the less prosperous townspeople of Turku were using glass beakers (Haggrén and Sedláčková 2007, 195, 234–236).

In other medieval Finnish towns, excavations in the oldest parts of the urban area have been few. One of the most extensive of these excavations was on the site of Ulvila (Sw. Ulfsby), where pieces from more than a dozen different glass beakers were found (Haggrén 2000b). Excavations in Swedish towns have not brought forth as much glass as that recovered during the excavations in Turku, but at least in Stockholm, Uppsala, Söderköping, Kalmar and Lödöse in Sweden (as well as Lund in medieval Denmark), glass vessels made in the Bohemian tradition were in use. Interestingly, urban excavations in Bergen, Norway, have shown the medieval deposits there to be rich in finds of Bohemian glass (Haggrén 2002.)

Over the last 20 years, a number of castles (e.g. Husholmen in Pernaja (Sw. Pernå), Raasepori (Sw. Raseborg) and the bishop's castle of Kuusisto (Sw. Kustö)) as well as royal and noble manors have been excavated in Finland. Pieces of medieval glass vessels have been found at most of them. Some of the sites do not lie on the coast, but rather in the inland of Häme, where *Fadenrippenbecher* and other glass beakers were in use. This is the case at least for Häme castle, the Jutikkala manor, and the parsonage in Vanaja (Haggrén and Sedláčková 2007, 196, 229–232, 239).

Since the beginning of the 21st century, several excavations have been undertaken on the sites of medieval villages and hamlets. In August 2006, pieces of medieval vessel glass were found in Hanko (Sw. Hangö), a small village close to the southernmost point of the Finnish mainland. The site lies only a few hundred metres from a regionally important medieval harbour, and the glass material from the site was initially interpreted as wreck finds made by local

fishermen who had been rescuing sunken ships. However, Hanko is no longer unique as an agrarian peasant settlement in producing such finds. Indeed, individual shards of medieval vessel glass made in the Bohemian tradition have been found at a number of other hamlets and villages; from Mankby in Espoo, for instance, there are pieces of at least ten different beakers (Haggrén and Terävä 2012) (Figure 19.5). In Sweden, while similar finds are rarely recovered in the excavation of rural settlements, they are not unknown. Gamla Kyrkbyn in Piteå, northern Sweden, for instance, has produced a number of pieces of medieval vessels of colourless glass (Wallerström 1995, 53–54).

Modern methods for the characterisation and sourcing of raw materials have begun to impact upon our understanding of the manufacture and provenance of these objects. Using the SEM-EDS-PIXE method Pirkko Kuisma-Kursula has analysed the contents of 54 shards of vessel glass made in the Bohemian tradition, and found at the site of Aboa Vetus Museum in Turku. Among them there were 17 shards of *Fadenrippenbern*. The concentration of the main components of the glass showed little variability in this group. The beakers with applied glass threads contained SiO_2 between 58.7% and 64%, CaO between 16.9 and 19.1%, and K_2O from 10.2 to 15.7%. The amount of Na^2O was only 0.5–0.8%. These results point to the use of potassium-chalk-glass of a common origin (Haggrén and Sedláčková 2007, 202; Kuisma-Kursula 1997). Andrzej Golebiewski has published analyses of four vessels from Elbing, Eastern Prussia, made in the Bohemian tradition, and his results show that two of them were made of glass similar to the Aboa Vetus finds (Golebiewski 1993, 132). A very similar composition was found in the material from the glassworks site of Kyjov II near Doubice in northern Bohemia. At Kyjov II, the sodium oxide content is a little lower than in the Turku material (0.2%; Černá 2003, 117). (Figure 19.6). This is not always the case, showing that not all the glass made in the Bohemian tradition was made in Bohemia, but rather thatsome finds have different compositions. For example the analyses of *Fadenrippenbecher* found in Brunswick indicate a different origin (Bruckschen 2004, 120, 386, 397).

Figure 19.5: Shards of glass beakers made in the Bohemian tradition found from the deserted medieval village of Mankby in southern Finland. (Illustrations by G. Haggrén).

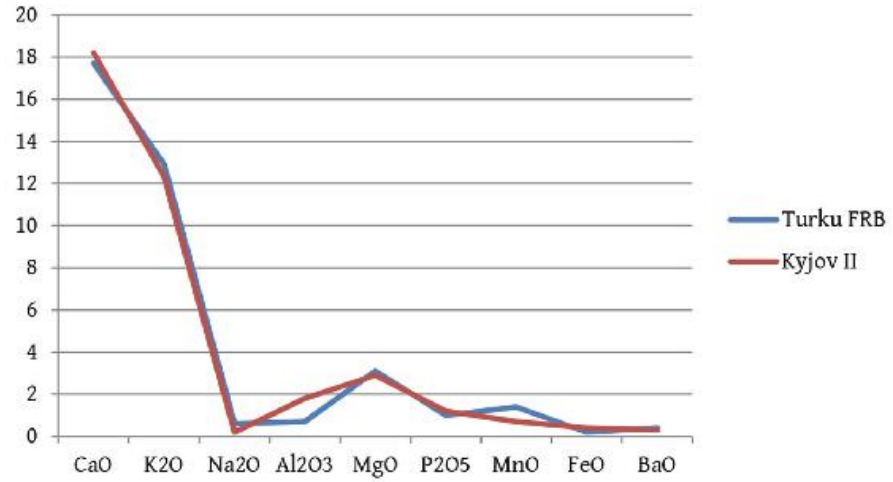

Figure 19.6: Main components (%) of glass made in Bohemian tradition found from Aboa Vetus Museum site in Turku (average of 17 samples) and Kyjov II (average of 6 samples). (Source: Kuisma-Kursula 1997; Černá 2003).

Conclusions

Glass is a fragile material. The lifespan of glass vessels was seldom more than a few years. Sometimes, a vessel may have been broken after only days or weeks, while in occasional cases a vessel might have remained in use for several decades. The only medieval exceptions to this rule were reliquaries and highly exclusive items such as Islamic (enamelled and gilded) or Venetian (enamelled) beakers, which seem to have been curated for centuries. Extremely few individual medieval Bohemian glass vessels survive intact today, which explains why this material was relatively unknown until the late 20th century. However, as a result of the archaeological excavations of the 1960s and '70s, it became clear that, at least in Bohemia and northern Germany, glass vessels had been in much wider use than was previously imagined. We now also know that glass made in the Bohemian tradition) was used outside of this area, becoming popular in northern Europe.

Glassworks were not large enterprises. Rather, they were small units, dependent upon local raw materials and the skills of the master glassblowers. They were situated deep within forested landscapes (see, for example Kyjov II in the vicinity of Dubice), but once the area around a glasshouse had been deforested, resulting in elevated costs for the firewood and ash used as raw materials, it was time for the glassmakers to move on. As such, the glass industry is a rather typical example of medieval and early modern proto-industrial production.

In the 13th century, the Bohemian glass industry found its market in Bohemia and neighbouring areas. However, it is clear that by the early 14th century, glass production had grown into an export industry with important markets in the German territories that lay north of the production areas in the Ore Mountains. These markets stretched to the coastal areas on the other side of the Baltic. The long journey of the glass vessels began on the backs of peddlers, or in small wagons, and continued in boat cargoes. Thereafter, the middlemen in the Hanseatic towns loaded the vessels -alongside other more important cargo – into cogs and other ships bound for destinations across the Baltic.

The first glasses made in the Bohemian tradition must have been exclusive items used by noblemen. The high-quality glass made in Bohemia soon became desirable outside the region, and among both

the secular and ecclesiastical nobility. Aristocratic and wealthy customers included the bishop of Turku, the castellan in Raseborg, the noble family in Jutikkala manor, and the high-end merchants of Bergen and Turku. However, by the late Middle Ages, even the craftsmen and retailers of Bohemian towns such as Most and Pilsen could afford glass beakers, as could the late-14th- and early- 15th-century townspeople living in the Mätäjärvi Quarter of Turku, Finland. Quite surprisingly, even peasants in coastal Finnish villages such as Mankby had the opportunity to consume individual glass beakers made in the Bohemian tradition.

Comparing the distributions of the various vessel types seems to reveal some patterning. Finds of tall, prunted Bohemian beakers seem to be concentrated at sites settled by the wealthy classes (such as castles, and prosperous quarters in urban centres). In contrast, shards excavated in the villages and hamlets of the rural environment almost always relate to more humble beakers, and are difficult to identify precisely given their lack of diagnostic ornament.

It is worth dwelling a little on this ornament. Some tall Bohemian beakers were adorned with more than 300 prunts. The decoration of such vessels must have taken hours, while the making of a humble beaker decorated with a simple glass thread may have taken only a few minutes (Liikanen 1999). Furthermore, large beakers took up more space in transport and storage, were more fragile and more difficult to transport than smaller ones. Naturally, these factors had some effect on the costs of production and transport. Thus, while it seems that in northern Europe, noblemen and merchants could afford exclusive glass of high quality, these were beyond the reach of most artisans, retailers and peasants. Nonetheless, it was still possible for such consumers to obtain a humble glass beaker. In the Middle Ages, glass was not a universally essential item, but, nonetheless it seems that in the late 14th and early 15th centuries, the fragile glass vessels produced in the Bohemian tradition were particularly valued commodities around the shores of the Baltic.

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Chapter 20

If sherds could tell. Imported ceramics from the Hanseatic hinterland in Bergen, Norway. Producers, traders and consumers: who were they, and how were they connected?

Volker Demuth

The urban archaeology of medieval Norway is in one respect similar to that of other medieval European towns; pottery forms by far the largest amount of finds. However, unlike the situation in any other European country (other than Iceland, which was always closely connected to Norway during the Viking and Middle Ages), no pottery was produced in Norway prior to the 17th century. Thus, pottery found in a medieval deposit anywhere in Norway could only have reached its findspot after having passed through a complicated network of diverse actors. This network is likely to have been of a largely maritime nature, as medieval pottery in Norway is almost exclusively found in coastal settlements. The dominant actor in the North Sea and Baltic region in the 14th and 15th centuries was the Hanseatic League. These facts, reliably and repeatedly shown by historiographical sources and research, give us macro-level information, very largely about politics and economy. In rare cases, written sources also tell us about individuals and their activities in the Late Middle Ages. Yet such sources are rather scarce, and references are usually limited to the small number of privileged persons in medieval society. The majority of people and commodities that formed the basis of medieval society and trading networks remain

invisible in the written records. On the other hand, archaeological material – and, in particular, anonymous bulk finds such as pottery – constitutes direct evidence of the activities of numerous unidentified individuals. This makes archaeological material such as imported pottery a unique source for the study of the actors in the Hanseatic world, and the networks of exchange within which they operated. In this study, western Norway and the hilly banks of the river Weser in Northern Germany form the endpoints of the chain of connections and interactions represented by the examined material.

Amongst the numerous finds in the archives of the Medieval Collections in the University Museum of Bergen, pottery is one of the largest material groups. To date, little of this pottery has either been identified as a known ware (i.e. of certain technological characteristics and with a specific origin), or has been analysed as a source for cultural history. Yet, a number of studies of well-defined ceramic wares from England (Blackmoore and Vince 1994), France (Deroux *et al.* 1994) and the Rhine area (Lüdtke 1989) have shown the great scientific potential of the Bergen finds. Thus, the author decided to examine the finds of late-medieval stoneware and early-modern painted earthenware from southern Lower Saxony and northern Hesse in Bergen.

This paper will discuss the pottery produced in a well-defined area of the Hanseatic inland of Northern Germany: the Upper Weser region, which lies in the German federal states of Niedersachsen and Hessen. This rural area has a long tradition of pottery production dating back to the Middle Ages, and in some villages surviving to the present day. The characteristics of this pottery enable us to identify it even amongst the vast quantities of archaeological finds from larger cities such as Bergen. In what follows, after a brief introduction to the material itself, the interpretation of the material will be discussed, with a particular focus on the following questions:

- Who were the producers?
- How was pottery traded, and who may have participated in this trade?
- What purpose did the traded pottery fulfil?
- Where was the pottery used in Bergen, and by whom?
- What mental and/or social aspects of life may be accessed

through analysis of the pottery or its use?

Introduction

Lower Saxon stoneware and Weser- and Werra slipware as archaeological finds: Potters, production area, typology and chronology

The material presented and discussed here comprises two distinct ceramic wares produced in a number of workshops in the hilly area along the rivers Weser and Werra, in the south of the German federal state of Niedersachsen (Lower Saxony). Even today, this area is known as 'Pottland', due to the potteries in many of the villages. Along with simple earthenware for different household needs, from the 13th century onwards elaborate tablewares were produced here. In the second half of the 13th century, improvement of ceramic technology resulted in a new form of pottery: 'stoneware'. This ware was made of special clay and fired at a high temperature, resulting in an almost-fused or completely fused fabric. Some stonewares were covered with an iron wash, that produced a glossy red or brown finish (Stephan 1981). The technology for this advanced ware was most probably developed in pottery centres in the Rhine and Meuse area, where fused stoneware was already being produced in the early 13th century (Stephan 1988). In the hills of the Lower Saxon 'Pottland', the special clays from the Tertiary period that are necessary for the production of stoneware could be found near to villages like Coppengrave, Fredelsloh/Bengerode and Duingen. Sources of this type of clay are quite rare, and only a few deposits are known for certain. For these geological reasons, the Rhine/Meuse area and the hills along the river Weser were for a long time almost the only significant areas of stoneware production in Europe. From the late 14th century on, production of stoneware started to take place in Saxony, with the best known production site there being Waldenburg (Gaimster 1997). Stoneware was also produced in northern France, though primarily for regional consumption.

In the 12th and 13th centuries, northern Germany was characterised by the founding of villages and towns in previously sparsely populated areas. This development generally required a high degree of human mobility. Furthermore, from Early Modern times it is well known that 'wandering' was an integral part of any craft

education. After apprentices had learned the basic technical skills of their craft, they had to 'wander' for 2 or 3 years as journeymen, improving their skills by working away from their homes, at different places and with different employees. It thus seems reasonable that the distribution of technology in crafts like pottery manufacture may be explained, at least in part, by these 'Wanderjahre' ('walking years'), which until recently formed an important part of the education and tradition of craftsmanship.

However, at the same time there was a strong local tradition of pottery in the areas discussed, and stoneware-production in the 'Pottland' may have begun with local potters who had worked for a time in the area of Rhine and Meuse (as journeymen, for example). It also seems possible that potters from these western German production centres moved some 200 kilometres eastwards and settled in villages of the later so-called 'Pottland' with their good clay sources. In some villages in that area, pottery seems to have played an important part in the rural economy since the 12th century (König 2009, 149). Most of these villages are situated in areas that were rather less well-suited to agriculture. There were, however, natural resources like large forests, clay, and sand, all of which were necessary for the development of industries such as pottery and glass production (Figure 20.1).

Unfortunately, there have been few archaeological excavations in pottery villages such as Bengerode/Fredelsloh and Coppengrave. Occasional finds of pottery waste in connection with construction work, or from surveys of deserted sites show that there must once have been a larger number of production sites (Lönne 2004, Stephan 1981). These examinations, and excavations in Fredelsloh, Coppengrave and Bengerode, demonstrated the existence of a number of workshops producing large quantities of stoneware and earthenwares. Due to the quantity of pottery and the quality of the ware, as well as the kilns and state of technology, it can be assumed that a considerable number of the inhabitants of these villages were engaged in pottery as their primary profession. Evidence suggests that the number of villages engaged in these industries decreased significantly from the 14th and 15th centuries, when settlements became deserted all over the region. However, some villages (including Coppengrave, Duingen and Grossalmerode) persisted, and

from the 16th century onwards, showed a renewed and substantial increase in pottery production. In addition to simple earthenwares (now mostly featuring an interior glaze) and stonewares, new wares were introduced: a range of highly decorated, painted and glazed earthenwares. In addition to the new shapes, like dishes and bowls, this pottery also introduced an innovation in its approach to colourful decoration. Thus it was not only functional, but also constituted a rather prestigious tableware. These wares were named Weserware and Werraware after the rivers near to their main production sites, and which acted as their main transport routes. The character of these wares – as a product largely produced for export – is thus indicated in the very terms used to refer to them in scholarly discourse (Figure 20.2).

Figure 20.1: Map of northern and central Europe, showing some of the pottery production sites discussed in the text (marked by a cross), possible trade routes and find spots (marked by a dot) of the discussed pottery (from Stephan 1981, 87, fig. 34).

Figure 20.2: Weserware bowl, found in Bergen, Strandgaten 55–57. Bright fabric and glaze, decoration in green and orange-brown. (Photo by V. Demuth).

Whereas the simply decorated Weserware was produced in the villages of the Pottland, largely identical with the centres of medieval stoneware production as mentioned above, the more elaborate Werraware was produced primarily in minor towns along or near the Werra. The most important production centres of Werra ware were the towns of Heiligenstadt, Witzenhausen, Wanfried and Hannoversch-Münden. To a certain degree, though mainly at a later date, Werra ware was also produced in towns away from the Werra such as Höxter at the Weser (König 2007), and Großalmerode in the Hessian mountains (Stephan1986).

Evidently the production of these distinctive new wares occurred in parallel, and together constituted an expression of the general upswing and cultural flowering of the so called 'Weserrenaissance'. In the late 16th century, the region along the rivers saw an increase in wealth that was expressed in (*inter alia*) elaborate architecture, portable material culture, art, and the emergence of a self-confident citizenship, which founded its wealth largely on craftsmanship and trade. This period came to a sudden end with the 30-years war (1618–1648). This tragedy reduced the population in the region by 30–50%, and left settlements and the economy in ruins. Unsurprisingly, pottery production seems also to have decreased and the production of elaborate Werraware came to an end. Nonetheless, some ceramic production persisted into the 19th century, and to some extent to the modern period, as seen in villages such as Duingen, Coppengrave and Grossalmerode. Written evidence from this latest phase provides insight into how the production and trade of ceramics might have been organised in the medieval period.

Characteristics of the wares

The pottery that forms the material basis of this paper consists of two groups: Lower Saxon stoneware and highly decorated, painted slipware. The first is fine tableware of more or less fused stoneware. In the high temperature at which the pottery was fired, the elements of the clay 'melted' together, making the fabric completely watertight. Such stoneware is therefore excellently suited as a container or tableware for liquids. The majority of Lower Saxon stoneware is covered with a reddish or brown ferruginous wash, 'which becomes fused and therefore impervious during firing' (Gaimster 1997, 300).

The Pottland region developed a distinct typology, with characteristics that are clearly different from stoneware produced in the Rhine area, the oldest and largest production area of stoneware in Europe. A typical and sure sign of Lower Saxon stoneware is a flat base, and rather fine thumbed finger impressions at the edge, resulting in a slightly frilled feet. In comparison, Rhenish stoneware is characterised by a rather thick, almost lentil-formed base and a robust thumbed feet, made by stronger finger impressions (Figure 20.3).

Rhenish stoneware generally has slightly thicker walls than the Lower Saxon material. The fabric of Lower Saxon stoneware is characterised by small, dark dots of melted ferrous particles that give rise to dark or reddish dots on the sintered surface. Rhenish material largely lacks these characteristics. The vessels made of Lower Saxon stoneware are mainly drinking and pouring vessels such as jars of different sizes, pitchers and beakers, though a number of special forms – including miniature vessels, zoomorphic aquamaniles and small toy figurines – are known. There are further typological details of chronological significance, but these go beyond of the scope of this paper. In broad terms, most of the Lower Saxon stoneware discussed in this paper was produced between the mid-13th century and the early-15th century. The youngest group of stoneware, which was largely produced in Duingen, dates to between the 16th and 18th centuries, and is dominated by storage vessels for liquids and food. However, in the late 16th and early 17th century, a range of elaborate, relief-decorated drinking vessels were also produced in Duingen.

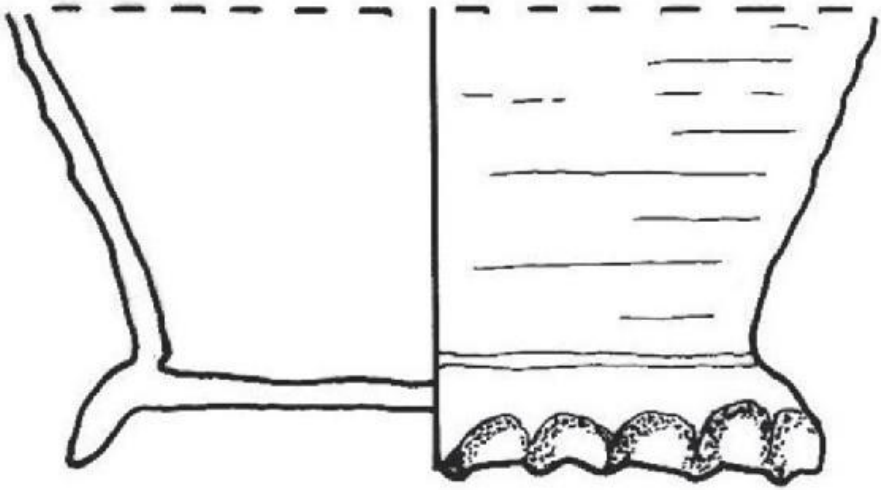

Figure 20.3: Basal fragment of a lower Saxon stoneware jug, found in Bergen in a late 14th-century context. Typical flat base with frilled feet, lightly thumbed. Diameter 10 cm. (Drawing by V. Demuth).

The second important group of pottery to be discussed in this paper consists of the early-modern slipwares known as Weserware and Werraware. Weserware is characterised by a light yellow or reddish-brown fabric that is decorated with painting in brown, red, orange, yellow and green. Occasionally the fabric was completely covered with a light slip and then decorated. The decoration is mostly geometric, but there are also a number of floral or zoomorphic motifs on the vessels. The decoration was painted on the unfired vessel before the it was given a clear lead glaze. The painting was undertaken with a 'Malhorn': a painting tool for liquid clay paint, which was originally made of the tip of a cow or goat horn, but was often later of ceramic material.

Forms produced in Weserware are dominated by plates and bowls of different sizes, but a considerable number of small, decorated, tripod-cooking pots were painted in the same manner. These cooking pots tend to show additional rolling-stamp decoration, which also occasionally appears on the hammer-headed rims of plates. Werraware output, on the other hand, consists almost exclusively of flat vessel forms such as plates and bowls of different sizes. Jars and pots occur occasionally, but are extremely rare. Werraware is characterised by a reddish fabric that is covered with two layers of slip: first a white one, than a red one, so that the surface is again reddish brown. This procedure is necessary for the application of the characteristic decoration of Werraware, using the 'Sgraffito' technique. This technique is found on slightly older Italian and French renaissance pottery that may have inspired the makers of Werraware. The central decoration is scratched through the red slip, making the underlying white slip visible. Thus, the motifs appear in white on a reddish or dark background. In addition to the main 'Sgraffito' decoration, vessels are also painted in geometric or floral patterns in white and green. Werraware vessels are fired twice, as this allows better results to be achieved when it comes to the advanced decoration. At first the scratched and painted vessels are biscuit-fired to fix the decoration. After this, the lead-glaze is applied and fired in the second glaze-fire. This technique makes it possible to decorate the pottery with detailed graphical pictures. Thus, the majority of Werraware is characterised by a rich iconography, including different anthropomorphic scenes, as well as diverse zoomorphic and (occasionally) floral motifs. This

iconography clearly has parallels in contemporary art and literature. Obviously then, the makers of Werraware – some of whom painted their initials on the vessels – were educated and literate artisans. Quite often, the year of production is also painted on the vessels, making these vessels an excellent dating material.

Weser- and Werraware were both produced extensively between *c*. AD 1570 and 1630. After 1630, the production of both wares decreases rapidly, most probably due to the effects of the 30 years war. A small-scale production of Werraware is recognisable in some places in the 1630s and ’40s (König 2007), but none is known from the second half of the 17th century or later, and some of the production places seem to have switched over to other types of pottery. The less advanced Weserware however, was still produced on a minor scale in the late 17th and early 18th century, showing a characteristic change in decoration.

Who were the potters?

A range of social groups can be distinguished when enquiring as to who produced the material under discussion. For the more elaborate Werraware, some master potters may be personally identified through written sources. One such individual may be Hans Feupell, originally from Heiligenstadt (possibly the oldest centre of Werraware production), who is named as a citizen of the city of Witzenhausen, where he had a workshop that produced pottery between 1599 and 1621(Stephan 1990, 596). His house and workshop were situated on the waterfront of the river Werra. Thus the term ‘Werraware’ seems to fit quite well as the production of this ware obviously took place very close to the river Werra.

During rescue excavations in the 1980s a vast amount of pottery waste was found, providing a detailed insight into a major Werraware workshop. Stylistic variation led to the conclusion that several artists were involved in executing the decoration of pottery. It is likely that master Feupell was the head of quite a large and structured workshop, with distinctly segregated work processes. The various stages of production, such as digging and processing clay, forming vessels on the wheel, decoration, and finally firing, were probably carried out by different skilled individuals. The master potter in such a workshop was probably primarily engaged in the organisation, initial layout and

design of the main decorative motifs, which often had direct predecessors in contemporary graphic art. This shows that the master potters of Werraware were well-educated artisans. The remainder of the production chain was probably composed of the kinds of individuals we might normally expect in a traditional handicraft workshop. Thus, there were the 'Lehrjungen' (apprentices), who were still undergoing training, and who would have been primarily occupied with the more simple tasks, and the 'Gesellen' and 'Altgesellen' (companions or journeymen; workers already fully-trained, but with different degrees of experience). The Gesellen and Altgesellen most likely undertook the forming, decoration, and firing of vessels. The master potter may have overseen the various stages of production, and undertook quality-control checks after the first firing. The enormous quantity of once-fired wasters indicates the operation of quite a strict quality-control process, as even pieces with apparently minor faults were discarded. Thus, it is clear that the producers of Werraware were quite aware that they were producing 'high-end' ceramics that were probably greatly valued by their consumers. Perhaps the potters disposed of all the wasters in order to avoid lower prices for pottery of inferior quality that in the long run may have reduced the value of the high-quality products.

As opposed to Werraware, Weserware was not produced in towns, but rather in the rural milieu of villages in the hilly 'Pottland' on the Eastern banks of the Weser. Unfortunately, no large or comprehensive workshop excavations have yet been carried out. There are, however, numerous finds of wasters, and more occasionally excavations of kilns. Additionally, a number of written and ethnographic sources relate details about the potters in this area, as ceramics was the core of the economy for large parts of the population in many of these villages, right up to the 20th century. It may be assumed that the organisation of production in the 16th and 17th century was similar to that recorded in later periods. The potteries were traditionally workshops or minor handicrafts, often family-owned and -run. Tax rolls from 1585 list 34 potteries in Völksen, 14 in Altenhagen and 10 in Bad Münder. All in all, it is estimated that Weserware was produced by about 70–90 workshops in several villages of the 'Pottland' (Stephan 1992, 56). The important pottery village of Duingen, which was a major production site of early modern stoneware, was also nearby.

The situation for late-medieval stoneware is even more diffuse, as written sources are completely lacking for the medieval period. However, it is clear that medieval Lower-Saxon stoneware was produced in villages, many of them abandoned in the late Middle Ages. A number of such villages are known, but the most important and best known are probably Coppengrave and Bengerode. While Coppengrave still persists today (albeit with some displacement of the settlement area), Bengerode was abandoned in the 14th century, whereupon its inhabitants and potters moved to the nearby Fredelsloh. Fredelsloh is still today a 'pottery village' with a considerable number of ceramic workshops still in operation. At least one of these still uses the same clay sources exploited in the 13th century. Some of the clay pits have been discovered in the forests, while kilns and numerous wasters are known both from the abandoned Bengerode and from Fredelsloh. From what we know, we can assume that these rural workshops were organised along lines similar to those that governed the smaller, family-based handicrafts reported from early modern times.

Both clay and the firewood needed to run the kilns were crucial resources in the production of pottery. It is likely that such resources were often easily accessible in the 'pottery villages', but written sources make it clear that from the 16th century onwards, when large areas of Germany were deforested, firewood became a rare resource, especially in the towns. In 1584, when about 21 potters produced Werraware in Heiligenstadt, other citizens of the town complained about the shortage of firewood due to the large use of this resource by the potters (Stephan 1990, 593). Struggles over this crucial resource may have been one of the main reasons for a large number of potters from Heiligenstadt moving to towns on the Werra, where they continued to produce the characteristic, highly decorated earthenware that modern research has termed 'Werraware'.

How was pottery traded, and who may have participated in this trade?

In the absence of written sources, it is often difficult to investigate the means by which pottery was traded. Thus, it is correspondingly easier to draw conclusions about the trade in the wares discussed above for

the early-modern period, but of course some of the characteristics of this trade may also have applied to the much less well-known medieval trade. It may serve us to start from first principles. It is a characteristic of pottery that it is relatively heavy and easy to break. Thus, certain precautions need to be taken in order to ensure safe transport. The most efficient means of transport for pottery is undoubtedly by ship. Hence, the rivers Weser- and Werra were the most important routes for the distribution of the material discussed in this paper. Again from the above-quoted source from the town of Heiligenstadt (dated 1595), we know that the majority of the Werraware produced went directly to Dutch traders who exported ceramics via waterways to the Netherlands (Stephan 1990). Werraware in particular seems to have been extremely popular in the Netherlands, and it is possible that these Dutch traders had special arrangements with the potters for the delivery of this material. The popularity of Werraware in the Netherlands was such that it actually led to the establishment of a Werraware workshop in Enckhuizen, the Netherlands. Between 1602 and 1612 this workshop, set up by the tradesman Dirck Claes Spiegel, produced perfect copies of Werraware (Bruijn 1992). However, Werraware was not exclusively distributed to the Netherlands. It is, of course, quite common in the region around the production sites, and is also commonly found in trading places along the North Sea. It is found as far afield as North America (Stephan 1993, 307), but it is unclear to what extent these rather singular finds of Werraware constitute traces of regular trade, rather than simply being personal belongings or gifts that have travelled by diverse mechanisms (Stephan 1993, 307).

Weserware's distribution pattern is similar to that of Werraware, though it seems to be even more widespread, being more often found in the inland areas of northern Germany, as well as in many places in Scandinavia and along the coasts of the Baltic Sea. There are no written sources about trade involving Weserware, but Weserware or a similar slipware may have been amongst the '5 chests with plates and bowls' that are mentioned as imports to Nya Lödöse, western Sweden in 1586 (Strömbom 1923, 276). This quotation from a tax-roll gives an idea of how pottery was packed for transport. However, once it had left its workshops, the first step for Weserware had to be overland, as the potter-villages all lie some distance away from the river Weser.

Carts were probably used for the transport to riverside towns such as Hameln, where considerable amounts of Weserware were found, and where local citizens were often engaged in river trade. Some of these traders from the early 17th century are in fact known by name (Grohmann, 2012, 178). A number of written sources evidence the trade with pottery down the river Weser in the 16th and 17th century (Grohmann, 2012, 177 f.). For the river boats that carried this cargo, pottery was usually their only type of freight, which may indicate that the trading of pottery was a specialised routine. Yet, it is known from 18th-century written sources that a number of potter families from the 'Pottland' travelled long distances overland in summer, in order to sell their products. Additionally, the small-scale pottery trader is a well-known phenomenon in the ethnographic and written sources of northern Germany. These were actors who carried individual loads of pottery on their backs, with the intention of selling from house to house. Contemporary prints from the 16th and 18th centuries show both women and men performing this trade Figure 20.4).

There are clear indications that Werraware was sold on the market at Bergen, Norway. Amongst material recovered through rescue excavations on Vågsalmenningen (Åstveit 1998), near to the central marketplace of the city, several fragments of Werraware vessels bear clear signs that they had been exposed to heat. The context of the finds – in a stratigraphic layer from a fire that devastated this part of the town in the early 17th century – indicates that they were burnt in a destructive fire at this place. This material augments existing finds from the same spot: A fragment from a stack of at least four Werraware plates – sintered together by the heat of fire – had been found in 1915 (Demuth 2001, 85, fig. 8). Obviously these plates were not displayed on a board, as was usual in early-modern households, but were instead stacked. Thus, it is highly probable that Werraware was stockpiled in large quantities here, as one would expect in shop storage. As we know from written sources, many of the craftsmen in this area of the town were also engaged in the small-scale trade of a variety of products. It seems highly probable that pottery – particularly semi-luxurious products such as Werraware – belonged to these traded goods. The remains of the Werraware stack may thus be interpreted as the physical evidence of a Werraware retail trade in Bergen. The ceramics may have come from the continent to Bergen by

various means. As all wares shipped on the river Weser had to be displayed or presented for sale in the city of Bremen before being transferred for maritime trade, all pottery shipped on the Weser must have been easily accessible at the marketplace and port here. In the 16th and 17th centuries, Bremen had strong connections with Bergen, and ships from the former frequently visited the latter for trade (Schreiner 1963). Pottery was probably comparatively cheap when bought in Bremen, though it had acquired considerable value by the time it was sold in Bergen. As ships travelling from the continent to Norway carried substantial loads of ballast, it seems that there was sufficient space aboard to carry heavy goods such as pottery.

Figure 20.4: Contemporary prints from the 18th (left) and 16th (right) century, showing traders with pottery in southern lower Saxony. (From Stephan 1981, Pl. 79.1; Stephan 1992, 120, fig. 183).

Another possible means of exchange was the small-scale trade undertaken by sailors. Written sources make it clear that each sailor on a Hanseatic ship had the right to transport a certain quantity of goods for sale on his own behalf in the harbours visited (Brück 1993). 18th-century documents record complaints by Norwegian merchants about 'loose sellers' on the streets and market in the small town of Molde, north of Bergen. These 'loose sellers' may be, at least in part, identified as our 'selling sailors' (Sanden 1988, 13). Nonetheless, there are also indications that pottery was exchanged by specialized ceramic tradesmen.

One example is a trader from Bergen op Zoom in the Netherlands, who is named in early-16th-century written sources as a 'kanneman'. During archaeological investigations, large quantities of Rhenish stoneware, obviously intended to be trading goods, were found in the remains of his dwelling Groeneweg, and Vandenbulcke, 1988). Similarly, in the 18th century, a tradesman with a large stock of pottery is named in Minden, on the river Weser (Lehnemann 1981, 11). Based on this evidence, the results of an excavation in Strandgate 55–57 (Dunlop 1993) can be interpreted as just such a warehouse for imported pottery. In the remains of a trading building on the waterfront, enormous quantities of ceramics were found, all dating from between the late 16th and the mid-17th century. As the buildings in this part of town are known from written sources to have had a mercantile function, and the finds consisted of an unusually large quantity of pottery from diverse regions, the presence of a pottery store seems most plausible. Werra- and Weserware make up the majority of decorated pottery in this material. Other decorated wares are stoneware (mainly from Siegburg), slipwares of different origins, and some exotic decorated pottery. However, the largest quantity of ceramics belongs to simple kitchen pottery (Demuth 2001, 118). Thus, it can be suggested that a considerable quantity of the pottery in 16th- and 17th-century Bergen was traded via large stores like the one in Strandgaten. Most probably, these magazines were owned by merchants partially specialized in pottery trade.

Compared to the early-modern material, the trade in medieval Lower Saxon stoneware is much more difficult to trace. One of the best pieces of archaeological evidence for this trade is a large quantity of Lower Saxon stoneware jugs that were part of the freight of a

medieval ship that sank or perished near to Nauvo on the coast of Finland (Tevali 2010, Wessman 2007). These recent finds are still being examined by Finnish marine archaeologists, but may provide important information about the Hanseatic trade in late-medieval stoneware. Dendrochronological analysis of the ship's timbers will provide valuable information concerning the precise dating of these late-13th-century stoneware types.

It can be concluded that a number of different types of actors were involved in the trade of pottery. There is evidence for specialized traders dealing with ceramics in bulk, and controlling trade all the way from producer to consumer. However, it is also highly probable that there were complex trade-networks, in which diverse actors were engaged in the different stages of exchange. These networks would have incorporated small-scale trade: both of individuals for whom the pottery trade provided their main source of income, and of other professionals – such as our craftsmen or sailors – who traded in pottery as an additional revenue stream.

What purpose did the traded pottery fulfil?

Judging by their form and character, the types of pottery discussed herein were intended to be used for a wide range of purposes. Of course, most objects may be used for something other than their original intended purpose, but the main function of the vessels should be considered as the most important aspect of their use. When asking why the pottery was traded, we should not forget that the key rationale for all trade in the late medieval and early modern periods was, as today, the desire for profit and economic advantage. Thus, there are different layers of meaning in our objects: their function as objects of practical use, their function as markers of specific habits, and their function as objects of trade that could be sold for profit.

The main forms of ceramics dealt with in this paper are tableware, and thus were meant to fulfil certain functions at the table. The jugs, pitchers and beakers of late-medieval Lower Saxon stoneware were clearly intended to serve the beverages stored in a larger container, such as a barrel. The function of the larger jugs was to pour such beverages into smaller, drinking vessels. Taking medieval drinking habits into consideration, it is highly probable that these beverages were beer or (perhaps) wine rather than water, juice or milk

(Bäumker 1987, 100). Water in most medieval towns was of rather poor quality (Hoffmann 2000, 21) and fresh milk and fruit juice were probably not easily available in an urban context. Generally beer and wine seem to have been the most frequently consumed beverages in the European towns of the late Middle Ages (Helle 1982, 318; Irsigler 1996; Laurioux 1992, 84). Thus stoneware drinking and pouring vessels were most likely used for the consumption of alcoholic beverages, although these functions could also be fulfilled by vessels of organic material that would have been available locally. It can thus be suggested that the use of imported ceramics may have had a certain meaning for the users, something that went beyond pure functionality. It is possible to imagine imported pottery in distinct styles finding value as a marker of a certain table culture influenced by foreign habits (Figure 20.5).

Moreover, imported stoneware vessels may have functioned as 'branding marks' for highly valued imported beverages such as beer and wine. In this context, it is noteworthy that Lower Saxon stoneware comes from a region that is known from written sources to have been an important region for the export of strong, high-quality beer. For instance, the small Hanse town of Einbeck, situated in close proximity to the 'Pottland', held importance as a centre of production for beer bound for long-distance trade (Heege 2002, 41). Moreover, there are frequent written sources concerning the import of beer from northern Germany to Bergen (Helle1982, 318). The characteristic stoneware may have functioned as an indication that the beverage served was 'real' imported beer. A similar and very convincing interpretation was given by French archaeologists Deroeux and Dufournier for the French Saintongue ware that most probably has to be seen in connection with the wine trade from south-western France (Deroeux *et al.* 1994). Finds of Lower Saxon stoneware on shipwrecks – such as the recent discovery of Nauvo in Finland, in which a large quantity of this pottery made up part of the cargo – may thus be interpreted in a way that sees a certain number of vessels accompanying the beer barrels, in order to give the consumer a kind of guarantee that he would be served a particular type of beverage. Yet it is also possible that the pottery was an independent part of the cargo, traded as a valuable household article.

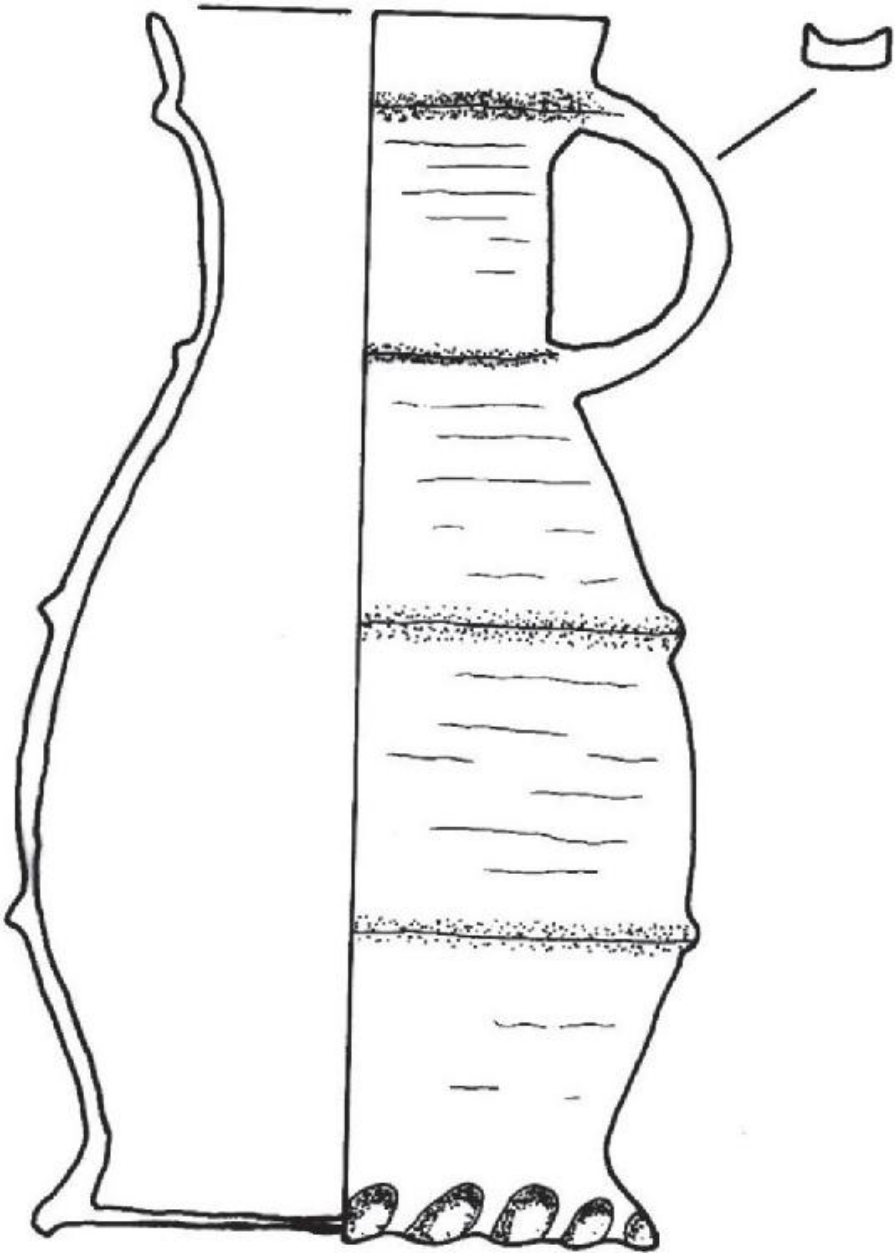

Figure 20.5: Typical small jug from Bengerode, found in Bergen, Bryggen. c. *17 cm high. Produced around 1300. Brown slip. (Drawing by V. Demuth)*.

The Werra- and Weserware are completely different types of material, and must have had correspondingly different functions. As mentioned above, the majority of Weser- and Werraware finds are plates and bowls, probably meant to be used as serving dishes for food at the table. This is probably also the case for the small, decorated, tripod-cooking pots of the Weserware. These can most likely be interpreted as specialised kitchen instruments, used to cook and serve certain 'hotpot'-like dishes. Generally, the 16th- and 17th-century florescence of plates and bowls as tableware indicates the appearance of a table culture with an increased variety of dishes (Gaimster 1986, 31). It also shows that through the use of such pottery, a representative table culture was accessible to a broad demographic. Contemporary pictures show that, when not in use on the table, plates and bowls where stored and displayed on boards or hanging at the wall. This would also be an aesthetically pleasing way in which to display highly decorated slipware when not in use. All in all, the use of such highly decorated objects is in accordance with the general everyday practice of the early-modern period, characterised as it was by the extensive use of decoration across many forms of material culture.

More particularly, the elaborate figurative decorations that characterise some of the pottery probably had highly specific symbolic meanings. Thus, the pottery was an important medium for a largely illiterate population. The ornament does express a number of profane and spiritual subjects. There are strong indications that painted slipware items were exchanged as gifts in marriage ceremonies, and the giving of pottery with particular ornament may well have expressed good wishes for the couple (Demuth 2001, 124). It may be supposed that highly decorated earthenware may have also been used on occasion as a symbolically loaded gift (Bartels 1986, 45; Hoffmann-Klerkx, 1992, 162). Historical, literary, and pictorial sources provide a starting point for the interpretation of the most common symbols used on the pottery, such that the painted slipware allows us an insight into the mentality of both producers and users in the early modern period.

Where in Bergen was the pottery used, and by whom?

The pottery discussed in this paper was found in several socio-geographic zones of the city of Bergen. On the basis of written sources, it can be estimated that the different areas of the town are likely to have been populated by people of quite diverse wealth and social status (Fossen 1979, 302). It is also important to note that the population of medieval Bergen was of a varied ethnic background. The majority of the inhabitants were native Norwegians (both newcomers from the rural areas and 'indigenous' townspeople). Another very large social group had their origin in the towns of the northern German Hanseatic league. This group formed as much as 25% of Bergen's population, and consisted both of people working temporarily in the mercantile centre of the Hanseatic Kontor, and of more permanently settled German craftsmen in the town centre. In addition to these German migrants, Bergen was also host to a considerable number of citizens of Danish, Dutch and British origin (Fossen 1979, 234). As a result, one issue when analysing Bergen's collection of imported pottery is whether these imported ceramics were used by migrants or by the population in general, regardless of their origin. Furthermore, it would be interesting to assess whether the distribution of the archaeological finds is indicative of distinct social groups using particular types of ceramics.

As a result of Bergen's history of urban archaeology, a large quantity of material has been excavated from the area of *Bryggen*, the locality at which the Hanseatic Kontor was situated. It can be assumed that most of the material found there was used by the Hanseatic citizens working in Bergen for a period. For them, using pottery from their homeland might have constituted a method of countering homesickness, especially when filled with the appropriate beverages such as imported northern German beer. It might equally have been a way of subtly expressing ethnicity or cultural identity, or of creating a group identity with fellow expatriates. All types of stoneware drinking and pouring vessels, as well as the decorated tablewares of Weserand Werraware occur frequently at Bryggen. As the area was also the mercantile centre of the town, it is possible that this material was at least partially meant as a trading good. However, the written sources provide no indications that trade in goods such as pottery was performed to any significant extent at Bryggen, where most business was in the movement and exchange of bulky commodities such as the

trade of Norwegian fish for Baltic grain. Thus, it seems most likely that the majority of the pottery found at Bryggen was used by the men of Hanseatic origin who lived and worked there (and who may have numbered up to 2000 people; Helle 1982, 743). The stratigraphic context of the Bryggen pottery supports the interpretation that it represents domestic debris rather than discarded trade goods, and it does seem that Bergen's 'Hanseatic' population tended to follow a lifestyle that was as similar to the experience of their hometowns as possible.

Another important findspot for our ceramics is Bergen's old wine cellar. This was the only wine-selling tavern in town, and was an important meeting point for the various elements of the town's population (particularly its Norwegian and Hanseatic citizens). In the wine cellar the different types of jugs and beakers may very well have functioned as markers for the various beverages served here. Unsurprisingly, fragmented drinking and pouring vessels in stoneware of various origin were the most frequent finds in the wine cellar, accompanied by a range of remains of drinking glasses. The number of different forms, not only of the dominating Siegburg stoneware, but also of the quite frequently encountered Lower Saxon stoneware vessels, indicates the existence of an elaborate table culture in the tavern. Thus, the site may have operated as an important gateway, through which Hanseatic table culture was transferred to the broader town population. From the 14th century the wine cellar was also closely connected to Bergen's oldest town hall, and parts of the building complex served as an administrative centre for the Hanseatic Kontor from around the same date. This suggests that visitors to the wine cellar belonged predominantly to the higher echelons of society.

However, Lower Saxon stoneware, as well as Werra- and Weserware are also found in more peripheral areas of Bergen which, according to written sources, were the dwelling areas of the less privileged members of the community. Unfortunately, only small-scale excavations have been undertaken in these areas, and the quantity of recorded pottery is correspondingly small. Nonetheless, the finds show that both late-medieval Lower Saxon stoneware and early-modern Weserware made up part of the household inventory in these areas. In short, it is clear that the pottery discussed in this paper was used by the less wealthy inhabitants of the town, as well as by the elite. In at

least one case, there are strong indications that the inhabitants of a house in which imported pottery was found were ethnic Norwegians (Hansen 1995, chart 5 and 6). Amongst the finds are fragments of fishing equipment that were probably exclusively used by Norwegians. This indicates that in the town of Bergen, the native population had adopted elements of table culture and consumption manners from the Hanseatic world. Yet, the appearance of other finds, such as fragments of a bone flute and a chess piece, give the impression that the inhabitants of this house were generally concerned with the cultivation of a sophisticated lifestyle (Hansen 1995, 33–34).

The distribution of our distinct forms of pottery shows one particularly striking characteristic: in Bergen, decorated tripod-pipkins in Weserware are found exclusively in the Hanseatic quarters. As mentioned above, these cooking pots may have been primarily used for the preparation of certain meat-dishes that were a festive speciality in Northern Germany ('Grapenbraten'). One interpretation of their distribution is that these pots were used exclusively by ethnic German inhabitants of Bergen, who prepared food in the manner they remembered from home. That these pots have not hitherto been found in a 'non-Hanseatic' context may indicate that this way of cooking and serving of food was not adopted by townspeople of other ethnic backgrounds.

What mental or social aspects of life may be represented by the pottery or its use?

The patterning in the pottery finds discussed in this paper may indicate that the users of such vessels in Bergen participated in consumption habits and table culture that were common across large areas of northern and central Europe. The fact that the Hanseatic League was a dominant economic and political actor in this region during the late medieval and early modern period may justify our speaking of a 'Hanseatic culture'. Indeed, the Hanseatic trading network not only provided access to basic commodities such as grain, but also to more elaborate and luxurious goods. Judging from the quantities traded and the status and cost of the material in the regions of production, pottery was not primarily an item of luxury merchandise, but it was nonetheless a non-essential, and almost a

‘lifestyle’ product. We have seen that stoneware jugs and beakers were primarily intended for the consumption of alcoholic beverages, and it seems that the drinking of alcohol in certain vessel forms carried a certain significance for the people of late-medieval and early-modern Bergen. This practice was clearly a common characteristic across what may be termed the ‘Hanseatic world’, and is reflected in written sources that document the large scale of the trade in both beer and wine. It is important to keep in mind that drinking might not only have fulfilled the physical need for liquid (or the urge for inebriation), but might have also been part of a cultural process, wherein the use of appropriate drinking vessels may have been socially significant. Thus, the stoneware vessels discussed here may be interpreted as physical evidence for the geographical expansion of a specific ‘Hanseatic’ drinking culture.

The decorated Weser and Werra slipware may similarly be interpreted in terms of consumption and table culture (Figure 20.6). We know that flat vessel forms become more frequent in northern and central Europe from the 16th century onwards. This increased use of plates and bowls is a clear indication of the introduction of a richer cuisine with a larger variety of dishes, all of which were delicately presented on the decorated pottery. This in turn may be seen as a sign of the increased wealth and self-confidence of the common citizens, as well as an indication of awareness and appreciation of food, decoration and ‘lust for life’ in general. In this sense, the highly decorated earthenwares can be seen as phenomena of a time in which colourful expressions became frequent and accessible to a broader spectrum of the population.

Figure 20.6: Werraware bowl found in Bergen, showing a bird and the inscription '1597'. Diameter: c. 16 cm. (Drawing by V. Demuth).

The iconography of Weser- and Werraware

The motifs found on painted slipware may be seen as direct expressions of contemporary mentality and worldview. In a time of rather limited literacy, pictures and symbols on widespread materials such as pottery must have played an important role as media. Thus, the decorated earthenware provides a deep insight into the minds of the producers and consumers. The decorated vessels themselves may have helped to convey the meanings that were expressed with the symbolic motifs. It is likely that these symbols were understood in both production and consumption areas, such that the vessels were able to function as media for the meanings of the symbols. As was mentioned above, the symbolism of Weser- and Werraware incorporates a large number of quite disparate motifs. The more detailed figurative decoration on Werraware quite often depicts scenes from biblical stories, highlighting the importance of the religion and spirituality that formed the ideological background of the 16th and 17th century. The stories behind the scenes were probably familiar to the receiver. Images of messengers from the Promised Land, in some cases represented by a single grape, are also quite common, and are frequently found in Bergen. It seems clear that for the recipients, the imagination of wealth and fertility was a most desirable part of this biblical teaching. Another common motif on both Weser- and Werraware is the sun, which is depicted in various personified renderings on Werraware, and in different symbolic and stylised versions on Weserware. The sun is also a powerful symbol, and even though its precise meaning may be debated, it seems most likely that it represents life and health. Also images of birds are frequently found on both Weser- and Werraware. There are strong indications that the bird symbol had sexual connotations in 16th- and 17th-century iconography (Demuth 2001, 125; van Gangelen 2000, 157; de Jongh 1968/69). This meaning would probably fit well with the use of plates and bowls as wedding gifts, as outlined above. In all, the highly decorated earthenware seems to point towards a mentality that was largely dedicated to earthly pleasures. Both the medieval stoneware and the early-modern earthenware then were a direct expression of the users' 'lifestyle', which seems to have shared many common elements across large areas of the Hanseatic trading network.

Conclusion

In this paper, I have attempted to show how pottery finds from the Hanseatic inland may give us an insight into the everyday lives and interregional interactions of people in three broad locales: Bergen as a place where the material was used, the regions in which pottery was produced and the areas along the transportation route. Various actors were engaged in production, trade, transport and use of these objects, yet they did not all leave such distinct marks in the archaeological material as did the potters, who in some cases literally left their fingerprints and handwriting on the vessels. Pottery is not only the most frequently recovered bulk find-material from late-medieval and early-modern archaeological excavations, but, as has been shown herein, it can also be used as a unique source for research into the actors and networks of the past.

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Chapter 21

Marine trade and transport-related crafts and their actors – people without archaeology?

Natascha Mehler

During the Viking and medieval periods, a number of trading centres emerged along the densely populated coastal areas of the countries around the North Sea. Many of them had evolved from older trading ports, others were newly established. During this period, many developed into proto-urban and eventually urban centres. The economic success of these sites depended not only on the geographical position and their local political power structures. Social preconditions such as the existence of trade and transport-related crafts were equally important. This paper attempts to follow the traces left behind by a group of people little known from either the written or the archaeological record. It focuses on the stakeholders involved in the physical part of trade, the largely forgotten group of people involved in the different stages of marine transport. Rope and sail makers, coopers, ship builders, anchor smiths, crane operators and other craftsmen providing harbour services, some of whom will be discussed in greater detail here, formed the structure upon which trade by water operated, providing both the packaging and the logistics for the transport of goods. Such crafts remain largely unexplored, both from and archaeological and historical point of view (e.g. Deggim 2007, 191). Moreover, it was probably this group of people that Heiko Steuer had in mind when he listed the five parameters defining a network of trade and trade-related crafts for the Viking period (Steuer

1987, 118–123). These parameters included the stakeholders (craftsmen, traders and customers), the actual transport of goods, the goods themselves (raw materials or products), marketplaces and producing sites, and the methods of payment. He pointed out that all but the first parameter can often be detected by archaeological means, but that the stakeholders – craftsmen, merchants and customers – are especially hard to identify. The same applies, of course, to the following centuries, i.e. the Middle Ages and the post-medieval period.

The stakeholders in trade and transport are frequently mentioned in written sources, but very hard to identify in the field. Many of their products were made of organic materials (e.g. ropes, sails, packaging) very little of which has survived in the ground. Where such objects did survive, at water-logged harbour sites for instance, the material has rarely been analysed or identified because they are simple everyday objects and not very prestigious items. Other harbour service providers, e.g. crane operators or small rowing boat owners and operators, remain completely obscure, because they did not produce artefacts and, furthermore, cannot be associated with either crafts or commercial businesses (Deggim 2007, 191, 216) (Figure 21.1).

In 1982, the anthropologist Erich Robert Wolf published a book called ‘Europe and the People without History’ which quickly became a milestone in anthropological theory. The book discussed the European expansion and global spread of capitalism after 1400 and the impact of European nations upon pre-industrial cultures across the globe. Wolf concluded that the world was ‘versatile allness’ where all processes were connected, and all cultures – including non-Europeans – were active participants in the progress of history. Previously, scholars had taken the view that some non-European cultures were static and as a consequence those without literality fell out of Eurocentric historical narratives (Wolf 1982, 385–391; Wolf 2010). Thus, Wolf coined the term ‘people without history’; the book title was, however, also meant ironically, since people do, of course, have their history even if they are not part of a literate culture. Soon afterwards, the term was introduced into Historical Archaeology but gradually changed its meaning to literally mean ‘undocumented’ people who can only be brought back to history by archaeological means (Little 1994; Orser 2004, 43–44).

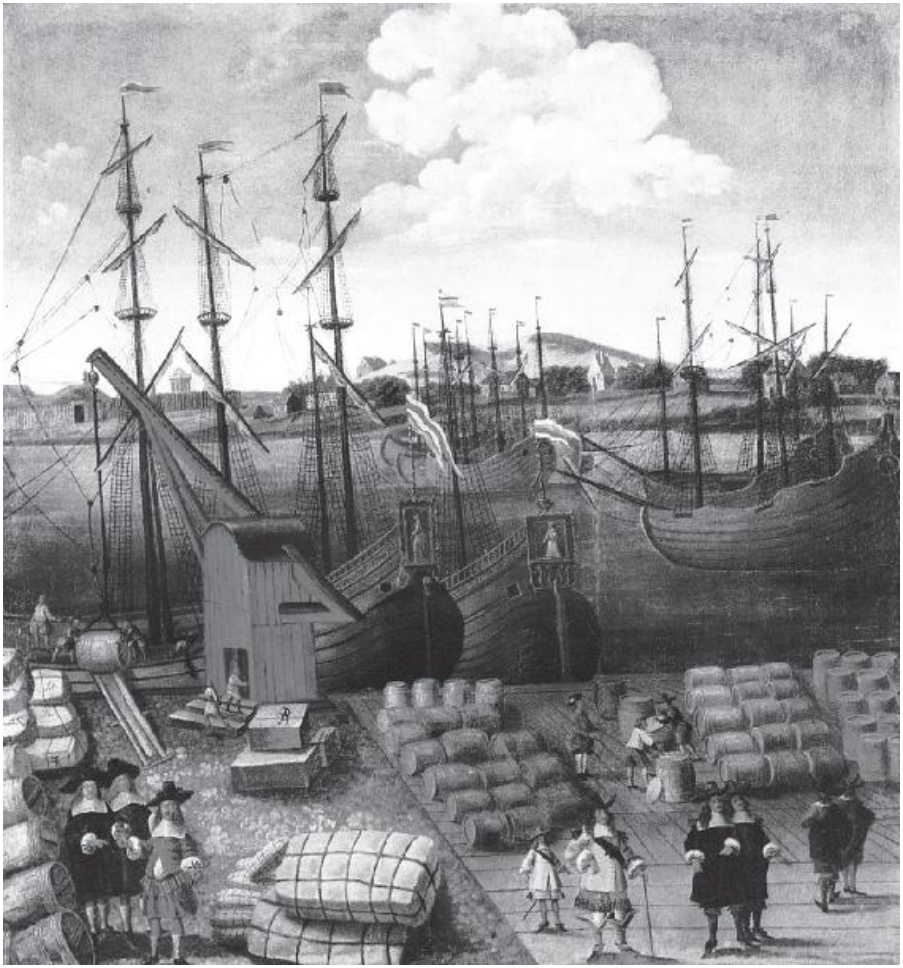

Figure 21.1: Riga harbour in the 17th century, where ships are being loaded with the help of a crane. Barrels and bales bearing house marks are visible in the foreground; after Rech 2004, fig. 335.

While the people this paper focuses on cannot be considered undocumented, the information we may glean from the documents is rather one-sided. A number of documents exist from the later Middle Ages. However, written sources are of little help in revealing biographies of individuals involved in such crafts (see also Müller 2000, 15; Prange 2006, 691), as their contents are dominated by economic and political facts and events. Documents such as wills, guild records and account books largely record the materials and functions that existed within a guild. The details they provide about people's lives are very basic (marriages, baptisms and deaths) and quite matter-of-fact. They very rarely mention actions, production processes or personal/emotional aspects (e.g. Gabrielsson 2007). However, the documents can be used to indirectly draw conclusions concerning the lives of craftsmen. Guild records, to give but one example, list the working hours of coopers from 8 am to 8 pm every day with the exception of Sunday. Hence, we may conclude that a cooper's spare time was very limited. While the archaeological record can provide additional information, the evidence is often hard to detect and the outcome largely depends on the questions asked. Therefore, and to slightly twist Wolf´s famous statement, while documentary sources do exist, many stakeholders in the network of marine trade and transport appear to have been people without archaeology.

Actors in trade and transport

Every significant marine trading site in the Viking and Middle Ages had an infrastructure providing the necessary logistics and vessels to maintain a large-scale transport network by water. However, traces of the crafts mentioned above are scarce, particularly with regard to the Viking period. While the larger trading ports needed shipyards in order to secure their position within the long-distance trading networks, such features are often very hard to identify in the archaeological record. They required large areas of open space with direct access to the sea either within or near the site. Haithabu, for example, had no shipyard within its ramparts; however, an 11th century shipyard was identified based on the discovery of parts of ships, cut timber and massive accumulations of splinters of wood to the north of the Schlei, an inlet of the Baltic Sea. Unfortunately, it

remains unclear whether this shipyard belonged to Haithabu or Schleswig, the town that emerged nearby (Kalmring 2010, 366). The site of Fribrødre Å at Falster, Denmark, is one of only a few examples of excavated shipyards. The site served not so much as a place where ships were built but rather a place where vessels, both long ships and cargo vessels, were repaired during the second half of the 11th century. The rich finds recovered included not only fragments associated with the building and repairing of ships but also a number of personal items. Wooden spoons, potsherds and remnants of leather shoes bear witness to the everyday lives of the craftsmen working at the site (Skamby Madsen and Klassen 2010, 263–265).

The shipyard in Bergen is known to have existed from about the 13th century onwards. It was located on the shore at the eastern end of Vågen, adjacent to the castle, which meant that ship building was done under the king's eyes (Figure 21.2). Although there is a large amount of written evidence concerning activities linked with the shipyard in Bergen from that period onwards, the wharf accounts, for example, do not contain any information about the workers (Nilsen 1985, 138–141; Helle 1995, 439–440).

In most cases, shipyards were situated outside the city centres. In Hamburg the shipyard was located on the so-called *Brook* (or *Schiffbauerbrook*), an area in the eastern part of the island of Kehrwieder in the river Elbe. Bills of the city council dating from the mid-13th century testifying to the lease of shipyards are the earliest known references. Each ship builder had to pay rent to the city authorities for the use of a booth to store his tools and materials. Ships were built following models, some 17th century examples of which have survived (Prange 2006, 692–693). Another case is Stralsund, where we know that 13 shipyards were located in the so-called *Frankenvorstadt* south of the city centre in 1412 (Möller 2000, 166).

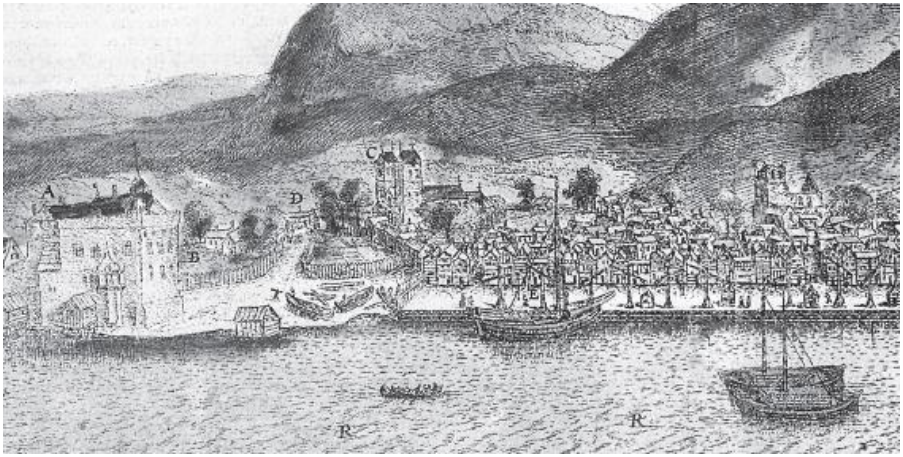

Figure 21.2: Detail of Bergen harbour from an engraving by Hieronymus Scholeus, dated 1581, showing the shore area in front of Bergen Castle with two boats being built or repaired. On the right-hand side behind the ship four luffing cranes can be seen in operation (source: en.wikipedia.org/wiki/File:Scoleus.jpg [last access 16 November 2011]).

With the growth of the Hanseatic League and the increase in marine trade, shipyards and their service providers became more and more important. At the end of the 14th century, it is estimated that approximately half of the Lübeck population, to name but one example, were pursuing crafts linked to the harbour and the shipping traffic (Fritze 1998, 113). Ship carpenters' and other craftsmen's guilds emerged during the 15th and 16th centuries in many Hanseatic cities (Prange 2006, 692–693). Although they set certain standards and regulations for the individual professions, working conditions at the shipyards were quite poor. Guild regulations from Hamburg dated to 1544 tell of hard work being done in all kinds of weather. Working hours and salaries were regulated, dividing the year into summer and winter months. In the summer, people worked Mondays to Saturdays from 5 am until 7 pm with a two-hour lunch break. During the winter months, work was restricted to daylight hours, since candles were a source of danger. However, ship builders were better paid than other craftsmen. From 1588 onwards they also received beer and wood splinter (for fuel) rations in addition to their wages (Prange 2006, 692–695).

Rope making was another craft which played a crucial role in the operation of any ship. Goods were transported and tied up using rope, it was used to make ship's tackle, fishing-nets and lines, and harbour cranes needed rope to operate. Pieces of ropes are frequently found during excavations, e.g. in Newcastle and in Bergen (Schjølberg 1988; Walton 1988), where rope making was already mentioned in the *bylov* issued by King Magnus Lagabøte in 1276. In Norway, ropes were made from local bast fibres but there was also a considerable demand for hemp ropes which had to be imported (Weber 1990, 158). In the later Middle Ages, the Hanseatic League controlled all the major hemp production centres and ropeyards throughout Northern Europe (Harris 1985, 144). In some cases, the craft is attested to in people's names. In Bremen we hear of a *Nicolaus Selslaghere* in 1261, in Hamburg of a *Richardus repslegere* in 1265, and in Stralsund of a *Hence Reper* in 1282. The components *sel* and *rep* obviously relate to the German word *Seil*, meaning rope (Eichhoff 1968, 6). With the emergence of guilds in these Hanseatic cities in the 14th century the amount of written records relating to rope making increased considerably. In addition to guild charters the city of Rostock also possessed a number

of rope makers' wills. Both types of sources allow us to gain more insight into the craft: a young boy wishing to become a rope-maker's apprentice had to be freeborn. In Lübeck, for example, the period of training was three years, after which an apprentice spent a number of years travelling as a journeyman to other coastal towns. Some of these, including Lübeck, protected rope-makers' products by banning the sale of ropes which had not been made by the town's own craftsmen (Eichhoff 1968, 6–14).

However, it is very difficult to obtain evidence of the process of rope production in the archaeological record, let alone the presence of craftsmen. Specific rope-making tools such as strand-layers are rarely found or correctly identified among the archaeological finds (Figure 21.3). The production of ropes not only required specific tools but also special long buildings called ropewalks (Figure 21.4), where long ropes could be produced. In Bergen, ropewalks were large craft-industries using imported hemp and providing employment for many workers. The first rope makers in Bergen seem to have come from Germany, Holland and Denmark. They trained local ropers, but working conditions were poor and wages lower than in other crafts (Harris 1985).

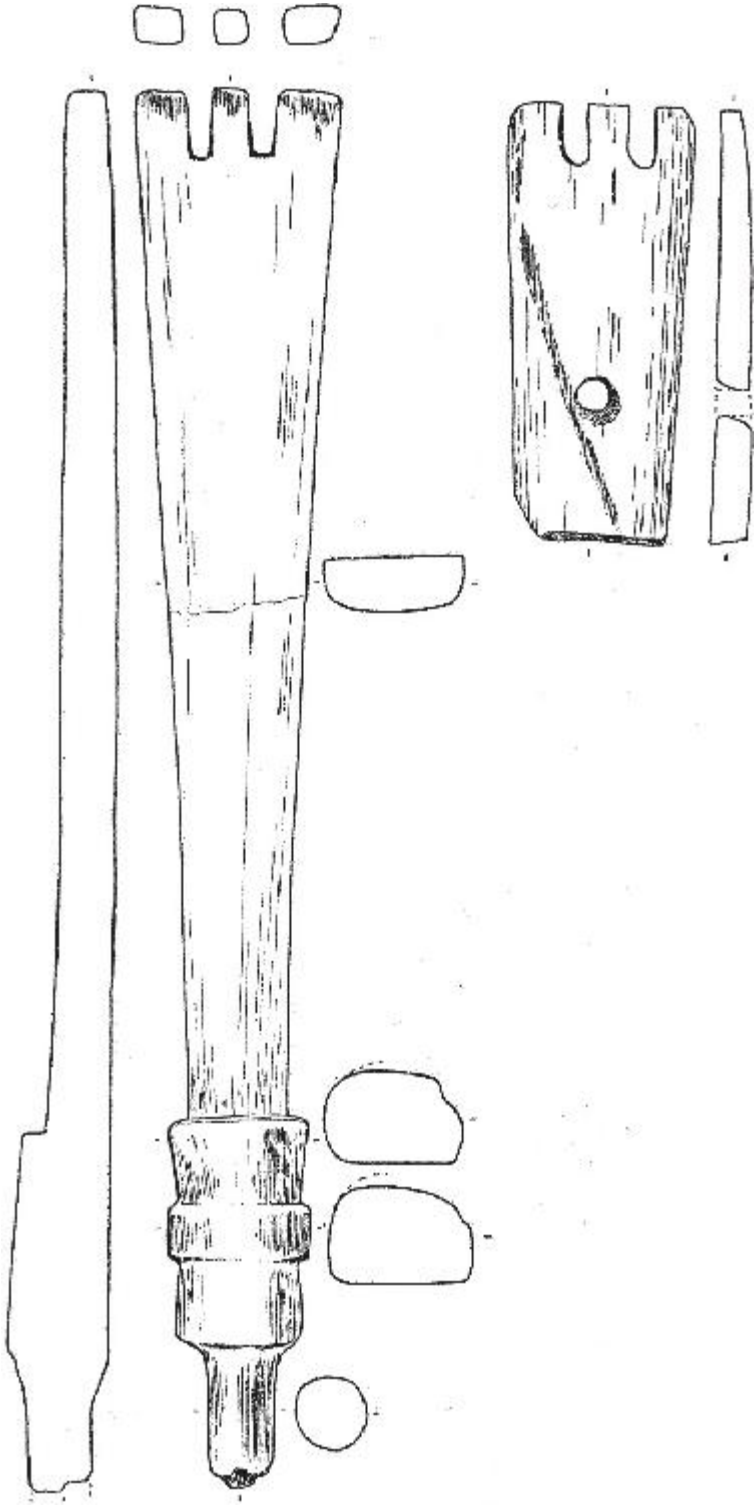

Figure 21.3: Possible strand-layers used in rope making were found in 11th century layers in Oslo (after Weber 1990, fig. 58).

Equally hard to find in the archaeological record are traces left behind by sail makers, even more so since hardly any sails have been identified amongst archaeological textiles. During the Viking period and the Middle Ages sails were usually made of wool or canvas, or in very rare cases of a more precious type of cloth called *pell*. Sail fragments have so far only been identified in the contexts of Viking ships found at Oseberg and Gokstad and then later at the *Wasa* wreck dated to 1628 (Möller-Wiering 2002; Cooke *et al.* 2002). However, sail making was already a vital part of textile production in the early Viking period, when sails were first introduced. They were even treated as a type of currency and a means of taxation. Grave goods from this period testify that sail manufacturers had considerable social standing. In Norway, for example, some high-status burials – both female and male – contained the remains of spindle whorl and weaving swords of a new type thought to have been used in sail making (Rabben 2002, 34, 57–67).

The shipping of bulk goods and other commodities required large amounts of packaging which were again provided by people we hardly pay attention to. During the Middle Ages, some goods were wrapped in cloth frequently referred to in Icelandic sources as *pakkavaðmál* (Möller-Wiering 2002, 167). However, we do not know whether this material was produced by specialised artisans or whether it was a by-product of textile production. Other materials were thread or yarn, used e.g. to tie up unwieldy commodities such as dried cod and bars of schist, which were found among the cargo of the Darss shipwreck, which sank off the coast of the German state of Mecklenburg-Western Pomerania in the 14th century (Möller-Wiering 2002, 168; Förster 2003).

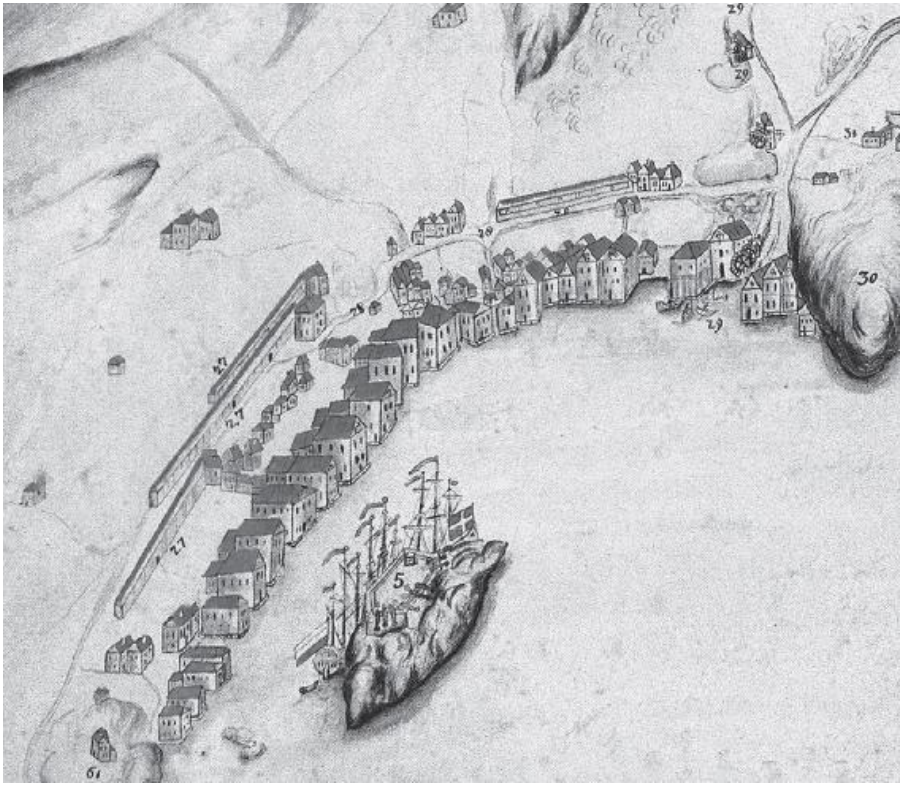

Figure 21.4: Sandviken, now a part of Bergen, was a centre of rope making. The long ropewalk buildings can be seen behind the warehouses (detail of a watercolour from the 1740s) (after Trebbi 2005, p. 5).

During the later Middle Ages, crafts and trade were embedded into well-organised networks which had gradually been established over many centuries. As the Hanseatic League became a major economic force in Northern Europe, its networks became more complex. Urban alliances developed and merchants began to use personal networks for the sharing of vessels or to establish trading firms (Dollinger 1998, 67; Burkhardt 2010, 70). The international trade activities of the Hanseatic League, which in some parts of Northern Europe continued well into the 17th century (Mehler 2009, 97), also had a substantial impact on the emergence, development and organisation of several kinds of crafts, not only in the German homelands but also in the League's spheres of influence. The League, as an economic alliance, was an actor in itself, controlling the production and distribution of a number of goods and raw materials.

Trade-related crafts within the network of the Hanseatic League

Craftsmen within the network of the Hanseatic League were mainly working in cities, although many rural settlements also produced goods for the League. As integral parts of the cities, most crafts were heavily regulated by councils and guilds. The guilds' tasks were quite diverse and included the collective supply of raw materials, quality management, but also the joint practice of religion and remembrance of deceased members, the upkeep of morality and maintenance of the welfare of poorer members and their kinsmen (e.g. Kattinger 2000, 81).

The Hanseatic League has long been an interesting field of research for historians. However, most scholars focus on economic aspects such as details of the trade in various commodities. Sub-domains such as crafts and their organisation are rarely studied and if they are, researchers tend to focus on economic aspects (Müller 2000, 14). Many aspects, including the provision of harbour services, have to date remained entirely unexplored from an historical point of view (e.g. Deggim 2007, 191). Archaeological studies of crafts, on the other hand, tend to concentrate on techniques and product ranges (Müller 2000, 21).

Coopers are an exception, in that they are much better

documented, both in written and in archaeological sources, with many excavations uncovering coppers' products and semi-finished products. Coopers were extremely important for the maintenance of trading systems such as the Hanseatic League, because most goods were transported in barrels: beverages such as beer and wine, foodstuffs including flour, butter and even dried cod, if it was not transported on pallets, commodities such as fish oil or sulphur and even books. The latter mentioned among the cargo of a ship from Danzig which sunk off the coast of Shetland in the late 16th century (SD II, 241). Coopers were found in every Hanse town and *kontor*, and were again regulated by guilds.

Hamburg was a major export centre for coopers' products within the Hanseatic network. 104 cooper masters are recorded to have lived in Hamburg and the timber they used came mostly from Königsberg/ Kaliningrad in present-day Russia. During the 15th and 16th centuries Hamburg exported barrels to Bruges and staves to Spain. German sources distinguish between barrel coopers (*Böttcher*) and the so-called *Bechermacher* (beaker makers) or *Kleinbinder* (makers of smaller containers without lids) (Holbach 2006, 657).

Lighters, flat-bottomed barges used to transport goods and people to and from moored ships, were rowed or steered by lightermen, another forgotten group of people. In Lübeck, lighters were owned by the city but operated by lighter masters who paid an annual fee for the use of the boats (Bruns 1953, 42–43). One product transported by lighters was ballast, a material largely overlooked today. In many cases flint or other types of stone were used as ballast but often we also find bricks, sand and other materials. Nodules and flakes of flint were often used as ballast in the later Middle Ages and in the post-medieval period (Figure 21.5). Ballast is usually recognised only if it consisted of bricks or a non-local type of stone. However, ballast was moved back and forth in such great quantities that we must assume that a 'ballast industry' existed, which involved collecting the stones, transporting them to the harbours, and distributing and loading them onto the ships. We do not know how this was organised in the Middle Ages. The only medieval records referring to ballast are a large number of regulations banning the dumping of ballast into the access rivers and harbour basins, which would have rendered these unnavigable (e.g., HUB 10, no. 620 Stralsund, no. 951 Danzig). In

Wismar, this even carried the death penalty. An occupational group or society, the *Ballasters*, were first recorded in 1370 in Hamburg, where special lighters were used to transport ballast (Deggim 2005, 24; Krause 2010, 174–176). David Steele's book '*The Ship-Master's Assistant and Owner's Manual*' which came out in its 9th edition in 1801 contains further information (Steele 1801). Chapter 15 is dedicated to ballast and provides much detail about the running of a ballast business. It mentions '*ballast-offices*' in London and Gravesend, the residences of the lighthouse authorities. Many different materials were used as ballast: '*dung, chalk, soap-ashes, flints, clay and other goods*' and '*bricks, tiles, lime*', even '*tobacco pipe-clay*'. Ship masters in need of ballast had to pay the ballast-offices and prices were by ton. Each ship had '*two ballast-men*' paid to ballast the ship out of the fees paid by ship masters to the ballast-office. Ship masters also paid for the use of the lighters operated by the ballast-men. If a ballast-man did not agree with the wages he could be fired and had to leave '*without giving three months' notice*'. Marks were placed on the stern and bow of each lighter. If a ballast-man operated an unmarked lighter he was fined 10 Pounds.

Figure 21.5: Flint from Laxfirth Bay, Shetland, the site of a major medieval trading port. Flint is not found on any of the islands in the North Atlantic, but was transported to Shetland as ballast. The light examples came from the Baltic, the dark examples are of unknown origin. (Photo by G. Gattinger, University of Vienna).

Some of the craftsmen mentioned here were not permanently based in their home towns, but were hired to join ships' crews travelling abroad. Most Hanseatic vessels sailing to remote places in the North (Iceland, Shetland) and East (Novgorod, Turku) probably had craftsmen on board with the specific skills needed overseas. An Oldenburg vessel sailing to Iceland in 1586, for example, had a carpenter, a cooper and a sail maker on board. They maintained the ship, helped pack the goods and carried out repairs on the booth that the merchants had set up on the Snæfellsnes peninsula. All crew, including the craftsmen, were allowed to augment their pay by importing and selling their own goods for profit (Kohl 1905, 46). We can reconstruct a year in the life of a cooper sailing from his home port in Northern Germany to Iceland: he would have left home in March or April and the voyage would have taken approximately four weeks. Once he had arrived at the destination, he would have been busy packing and unpacking goods and keeping things going during the summer months. The crew usually slept on board, while the booth on land was used to store the goods. In August the ships returned home, because they were not allowed to stay in Iceland for the winter, taking a detour via London or any of the other British ports (Gardiner and Mehler 2007, 403). The cooper would then have spent the winter months working at home.

Objects and symbols of trade

The pure act of trading, i.e. the physical exchange of goods, is represented by objects such as scales and weights, coins, touchstones, seals and seal matrixes, which are linked not only to the main actors in the trading process, the merchants, but also to the producers of the items. While coin minting was controlled by the sovereign and was only carried out in a few places, all larger trading towns probably had craftsmen producing objects such as scales, weights and seals during the Viking period and the Middle Ages (e.g. Pedersen 2008).

Among these items coins, scales and weights are the ones which archaeologists have traditionally paid most attention to. Parts of scales and weights have been found in Viking-period graves in many parts of Northern Europe (e.g. Haithabu in Germany, Birka in Sweden, and Iceland), where they are interpreted as personal possessions of the deceased, presumably traders or merchants (Steuer 1973; Steuer 1987;

Eldjárn and Friðriksson 2000, 608) (Figure 21.6). They are also quite often found in urban excavations (Steuer 1997). Less is known about touchstones, small pieces of a dark type of stone (e.g. slate, agate) used to assay precious metals or alloys e.g. in coins. A complete touchstone was identified among the finds recovered from a 16th/17th century trading station on the Faroe Island of Suðuroy. It has a finely grained surface upon which soft metals leave a visible trace, as can be seen in scratch marks on three of its sides. It was a typical merchant's tool, often carried in a bag or purse on one's belt. While its origin and date are unknown, it must have belonged to a merchant who used it for assaying the metal value of coins he received in exchange for his goods (Arge and Mehler 2012, 183).

Figure 21.6: Selection of weights from Viking burials in Iceland (after Eldjárn and Friðriksson 2000, fig. 347).

Other and more personal objects pointing to trade are seals, seal-dies and merchants' or house marks. Hanseatic examples were the personal hallmarks of traders' families. A complete seal-die consisting of a lead matrix and a bone handle was found at the Hanseatic trading site at Avaldsnes, Norway (Mehler 2009, 98, fig. 6). It used to be in the possession of a merchant whose name is unknown to us. The trading site also yielded another type of personalised trade-related items; a great number of medieval house marks that can still be seen on a wooden church door from Avaldsnes, now kept at the University Museum of Bergen (Acc. nr. B6166), as well as on the door frame and on other parts of the still standing Church of St. Olav at Avaldsnes, an impressive 13th century stone structure. Some of these symbols must have been carved by traders and sailors frequenting the trading post from the late 14th century onwards (Figure 21.7; see also Figure 21.1). However, no comparative study has yet been under-taken between the marks at St. Olav's church and the known house and owners' marks which have survived in the Hanseatic home cities.

Figure 21.7: House/owners' marks carved into the steatite door frame of the St Olav's Church at Avaldsnes, Norway. (Photo by N. Mehler).

Conclusion

Marine trade in the Viking and Middle Ages is a field of research which has attracted many researchers, both archae-ologists and historians. However, some crafts, and their physical traces and symbols have rarely been investigated because they are very difficult to detect using standard archaeological methods. Many of the people involved have also been neglected by researchers. Craftsmen, including rope makers, sail makers, lightermen and ballast-men represent a group of actors sharing a thankless fate: unlike the merchants', their vital roles within the trading networks are today largely forgotten.

The lack of attention from an archaeological point of view partially lay in the fact that some provided services and hard labour, while others either produced material culture, very little of which has survived, or transported unworked materials such as flint or sand. Others produced goods that were not prestigious enough to have attracted the attention of archaeologists or art historians. However, as actors they did indeed 'encode objects with significance' (Appadurai 1986, 5).

It is sometimes necessary that we, as archaeologists, also open our eyes to inconspicuous objects such as unworked flint nodules. Even workers who were not directly involved in the production of artefacts can be detected via their everyday waste. The people dealt with in this paper are not without archaeology, we just have to look more closely to find them amongst our material.

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